



HIMALAYAN RED BEAR

Photo—L. J. John

CHEETAL

JOURNAL OF

The Wild Life Preservation Society of India



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No. 1

Wild Life Preservation Society of India

I. The aims and objects of the Society are as follows:

- (a) To promote interest in and impart knowledge regarding the preservation and conservation of all forms of wild life, particularly among the youth of the country.
- (b) To co-operate with the Govts. of India and States and with other Societies and Institutions having similar aims and objects in working for the interests of wild life.
- (c) To assist in enforcing and actively supporting the Forest Acts, Wild Birds and Animals Protection Acts and Rules etc. of States and the Indian Arms Act and Rules in so far as they pertain to wild life and to bring to the notice of the authorities any infringement of the same and to assist in the detection and prosecution of offenders in respect of such laws.
- (d) To advise and help the Govt. and wild life administrators in the formation, maintenance and protection of Sanctuaries and National Parks, the preservation of wild life in general and rare species of India in particular and in the introduction of exotic species into the country, the rehabilitation of rare species etc. and in the revision on rational lines of the shooting and fishing rules, so as to conserve and increase wild life stocks.
- (e) To raise funds for the carrying out of the above aims and objects and to found and maintain museums, reading rooms and libraries of natural history in order to disseminate knowledge regarding wild life.
- (f) To promote sportsmanship in shikar and to recognise well regulated shooting and fishing, as a means of preserving wild life and fish so that through wise use the surplus may provide recreational asset to the nation.
- (g) To carry out publicity and propaganda for the preservation of wild life in India by means of monographs, journals, bulletins, films, film strips and other feasible methods.
- (h) To assist members of the Society in obtaining shooting and fishing facilities and facilities for viewing and photographing wild life in India.
- (i) To conduct research into the problem of Wild Life management in India, and in pursuance of this, to initiate, encourage and, where possible, assist in projects for the study of threatened species and related subjects and to provide reference and research facilities for such work.
- (j) To carry on such other activities which will serve the above objectives.

What membership of Wild Life Preservation Society of India will entitle you to ?

1. You will become an active member of the growing number of Wild Life enthusiasts, who enjoy working for and spreading the knowledge of how to conserve India's heritage of Wild Life for posterity.
2. You will be entitled to the full use of the Library of the Wild Life Preservation Society and of its reading room.
3. You will receive a personal certificate.
4. You will receive a personal Identification and membership card.
5. You will be entitled to buy all publications of the Society at a concession rate.
6. You will be entitled to buy at concession rates the Society's Greeting Cards, Calenders, Tie and the Balance of Nature Game (Specially published in colour for its educative and recreational value).
7. You will be supplied "Cheetal", the Half Yearly journal of the Society free.

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Wild Life Preservation Society of India

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Wild Life Management—A Technical Profession

GEORGE H. KELKER AND J. JUAN SPILLET

The term "wild life management" refers to the management of the vertebrate animal species and their habitats. Included are both song and game birds, rodents and furbearers, big game mammals, proper range use, and both stream and lake fishes. Public relations is also an important part of wild life management and the unifying force for all of these diverse items.

Wild life management is a technical profession related to forest and range management. As with the professional forester or the range management specialist, the basic requirement for a wild life manager is four years of university training. In the United States, this schooling consists of three parts science and one of humanities. About one-fifth of the Bachelor of Science graduates in Wild Life management go on for a Masters Degree, which requires a total of six years university training and a written thesis reporting the results of a field research problem. Fewer than one out of ten professional wild life specialists complete a doctorate program.

Aldo Leopold, considered the father of modern wild life management, wrote the first book called "Game Management". He defined game management as "...the art of making land produce sustained annual crops of wild game...". Although harvested animals are still used for food, the recreational values of wild life are of primary importance in many countries. Generally, the flesh of only the furbearers or animals considered as vermin is wasted. Besides shooting or capturing wild animals for food, recreational uses of wild life include tourism and sightseeing. An extreme case is that of the American "buffalo" or bison. Fewer than 50 head are shot each year in all of North America by public hunters. However, thousands of photographs are taken of the remnants of the vast numbers of these animals that once roamed the prairies of this continent. Therefore, the management of this species is primarily designed to preserve it as a tourist or sightseeing attraction.

The recorded history of game management, to use the more restricted term, dates back to the Biblical time of Moses when the Israelites were making their 40 year sojourn in the Arabian desert. The Book of Deuteronomy, Chapter 22, Verse 6, records: "If a bird's nest chance to be in front of you, in any tree or on the ground, with young or eggs, and the hen is sitting thereon, thou shalt not take the hen with the young: Thou shalt let the hen go, but the young thou mayst take for thyself..."

From this humble beginning of selective hunting recorded in the Bible, six steps can be traced leading to the development of our present ideas of wild life management. These are:

1. Restriction of hunting as to kind of animal and season for its shooting or capture.
2. Control of predatory mammals and birds.
3. Establishment of areas reserved for the protection of a particular animal species.
4. Artificial restocking of birds, mammals, and fish.
5. Habitat improvement.
6. The development of the idea of aesthetic values and the ethical belief that each living creature has an inherent right to live.

The control of predators is still prevalent in America. However, all members of a predatory species are often indiscriminately destroyed, rather than only the particular individuals of that species which may be wrong-doers". This has often resulted in unforeseen and sometimes drastic repercussions. For example, cougar and bear were eliminated to a bare remnant and the wolves were exterminated in the western United States. This is the reason that many deer herds have expanded to the point where they have severely overgrazed and abused the forage which sustained them. As a result, many deer have starved and their range will presently maintain only a small proportion of the numbers it did prior to the advent of predator control. Of course, in some areas predators were destroyed to prevent depredations upon domestic livestock. This did not apply to sanctuaries and parks from which livestock are rightfully excluded.

There is also somewhat of a tradition of wild life management in India. In the *Artha Shastra*, which is attributed to Kautilya about 300 B.C., certain forests and the wild animals inhabiting them were protected. Such forests were called *Abhayaranya*. They were strictly supervised and certain mammals, birds and fish were fully protected. "The extraction of timber, burning of charcoal, collection of grass, fuel and leaves, the cutting of cane and bamboo, trapping for fur skins and tooth and bone were all totally prohibited." Also, in 242 B.C. the Emperor Asoka's fifth pillar edict gave protection to fish, animals and forests. (Gee 1964)

However, since Independence in 1947, much of this noteworthy tradition has been overlooked by the present generation.

The earliest record of lands being reserved for wild animals is the report of Marco Polo when he travelled to Cathay. He claimed that the Great Khan Kublai had places of no hunting where he fed the wild animals during the difficult seasons of the year. This ruler also declared a closed season on hunting, from October to March "...so that they may increase and multiply." Thus, wild life conservation is not a modern concept, but was probably practised in prehistorical times.

The establishment of sanctuaries and parks for the protection of particular species also gave rise to the establishment of game farms and fish hatcheries. Almost all of the 50 states in the United States have invested substantial amounts of money for fish hatcheries, including property, buildings and facilities. These hatcheries continue to be of importance. Game farms, on the other hand, are not so plentiful and are gradually being recognized as an inefficient method of propagating game species. Studies have repeatedly demonstrated that habitat improvement is a more efficient method of increasing most wild life populations, rather than stocking from game farms.

Habitat improvement consists of either changing or making an area more suitable or desirable for one or more wild life species. Providing water in drought areas or draining swamps or marshes, eliminating undesirable plants or planting desirable ones are all examples of habitat improvement. The improvement of the plant community may favor nesting and rearing grounds and provide escape lanes and hiding places for wild life or provide cover and shelter from strong winds, cold, or the heat of summer. Feeding areas during difficult seasons of the year, such as the snows of winter or the droughts of late summer, often permit wild animals to survive and multiply that would normally die during these seasons. Providing water in deserts or dry areas often permits increased numbers of animals to utilize an area on a year-round basis. A unit called a "gallinaecious guzzler" has been developed specifically for the use of birds such as partridges and quail in desert regions. Such a unit consists of a covered basin holding from one to five hundred cubic feet of water, which is accessible to the birds by a sloping cement ramp. This ramp is a wide apron, about ten by twenty feet, which catches the rainfall and funnels it into the basin. Being covered, there is practically no loss to evaporation.

The aesthetic concept that all animal species have an inherent right to live and that their presence is of an aesthetic value to man has gradually evolved from the first five steps of wild life management. It has taken man centuries to realize that everything can not be explained in economic terms. How can you put a price tag on the thrill of seeing a tiger?--of being

able to escape the bustle of modern living and enjoy the tranquility of nature?—of seeing the mysteries of nature revealed through the actions of her myriad of living creatures? Literally millions of people in our modern world are willing to travel thousands of miles and spend thousands of rupees just for the opportunity of briefly observing a tiger in its natural surroundings. Others travel half-way around the world just to see India's prehistoric-looking One-horned Rhinoceros in the Kaziranga Wild Life Sanctuary. These same animal species can be seen in numerous zoos all over the world, but viewing them in their natural setting gives greater meaning to the observer. Many species once considered 'game' are no longer found in sufficient numbers to permit shooting them. The importance of protecting and preserving those remaining is being emphasized more and more as the world's increasing human population results in increased pressures upon the remaining haunts of its wild life. In fact, eleven of India's forty big game species are presently considered to be on the verge of extinction. Numerous societies throughout the world are striving to preserve these animals and to restore them to a remnant of their former numbers. Only with the interest and cooperation of the public can many species be spared from oblivion.

All of these steps in the development of management are being used today by wild life managers in many nations of the world. A knowledge of the historical development of the wild life profession is part of the training of a wild life specialist. In order to establish a system of knowledge and practices in the student or future wild life manager, the Society of Wildlife Management appointed a committee to draft an outline of objectives for student training. The senior author was a member of this committee. The report is summarized as follows:

KNOWLEDGE, ABILITIES, AND TECHNIQUES NEEDED BY A WILD LIFE MANAGER

I. Recognition of Wild Life Forms

1. **Animals:** He must know the characteristics, habits and life histories of the common birds, mammals, and fishes, and be able to recognize them and their signs in the field.
2. **Plants:** He must know the common plants well, and usually be able to determine the identity of unknowns whether or not they are in flower or fruit.

II. Ecological Knowledge

1. **Ecology:** He must be able to recognize various ecological compositions of vegetation.

2. Coactions: He must have at least a rudimentary understanding of the influence of animals upon one another, the influence of animals upon plants, and the effects of kind and arrangement of vegetation upon the animal inhabitants of a locality.
3. Topography and Climate: He should understand the significance of site, the influence of soil, moisture, exposure, and climate upon the kinds of plants and animals that can live in certain places.
4. Technical Forestry and Agriculture: He must have some knowledge of the effects of logging, burning woodlands and grasslands, draining marshes and swamps, flooding, cultivation, grazing, and recreational activities for these are the tools of the wild life manager.

III. Special Techniques

1. Mapping: He must deal with lands. Therefore, it is necessary that he be familiar with the system of land sub-division in the locality where he will work. He should be able to locate boundaries and tie in his activities with these boundaries or with other known reference points. He must be able to make vegetative type maps in the field with facility and accuracy.
2. Sampling: He must have an elementary understanding of the principles of sampling (statistics). Many of the facts on which he will base his management plans will be obtained by sampling methods.
3. Tracking: He must be able to track common animals by footprints and other signs, and read the stories of action by various signs along a trail with a high degree of accuracy in interpretation.
4. Harvesting Surplus: He must be familiar with various hunting and trapping equipment, methods of use, handling and preparing of harvested game and fur, marketing prices and methods. He should be an able hunter and trapper.

IV. Administration

1. Laws: He must understand the machinery, both national and local, by which wild life and other natural resources are administered. He must know the laws applied in wild life administration, why they were adopted, and how effective they have been.
2. Economics: He should have an understanding of the law of supply and demand, having an understanding of values, and a knowledge of costs, so that he will appreciate the financial limitations that must limit his activities.

V. Public Relations

1. **Contacts:** He must have an appreciation of human elements that may limit his activities, and understand how to use public speaking and the written word in gaining public confidence. He must be able to manage assistants.

—The Wildlife Society Committee on Professional Standards

Leo K. Couch

George H. Kelker

Samual A. Graham

Allen M. Pearson

George O. Hendrickson

Gustav A. Swanson

Concerning the Introduction or Re-introduction of the Indian Rhinoceros into Other Parts of India

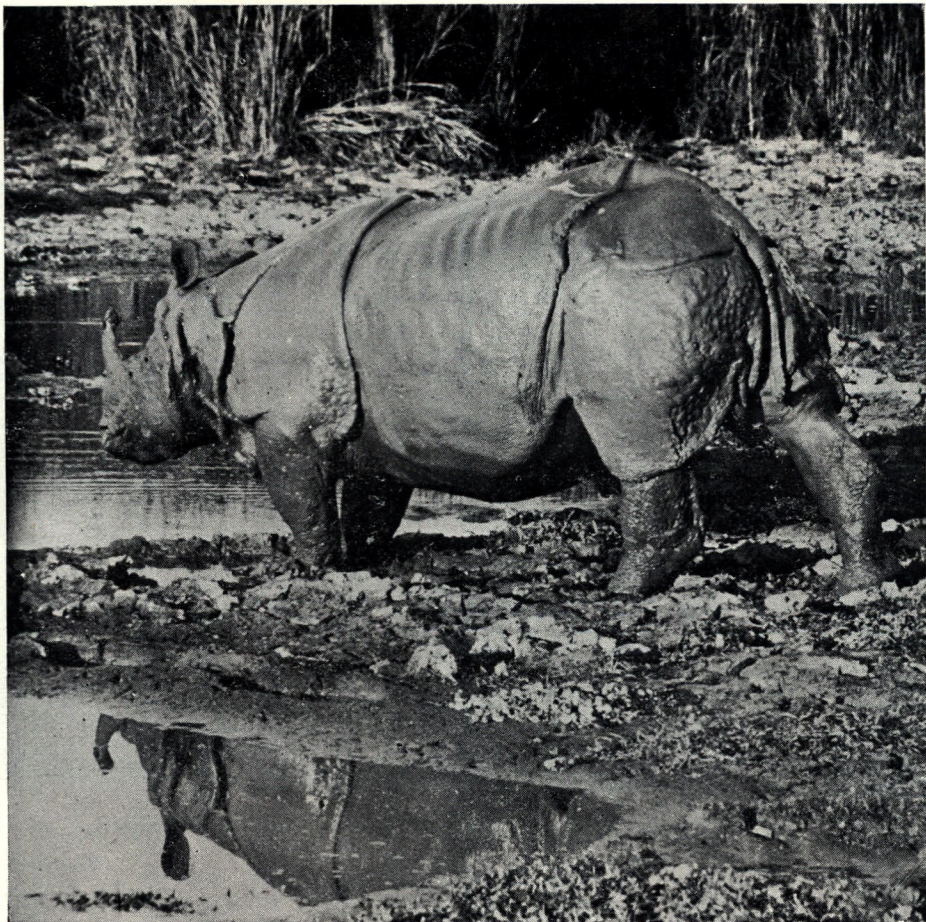
E.P. GEE

In recent years there have been some proposals for introducing new species of animals into certain parts of India. For instance, some people have suggested introducing the rhinoceros from north-east India into other parts of the country. The pros and cons of such introductions are here discussed very briefly.

1. Policy

(1) It is an internationally accepted principle, and also the national policy of India (as expressed in resolutions passed by the I.B.W.L.), that species which formerly existed in a part (of India) but are now extinct may be re-introduced into that part—provided that the climate and vegetation are still suitable (to be ascertained by an ecological survey by experts). This means that the Indian rhino could in principle be re-introduced into some part of U.P. or Bihar because the rhino existed there within the last two hundred years, but see II (1) and (2) and III (1) to (6) below.

(2) It is an international principle, and also the national policy of India, that new species should not be introduced into places where they have never before existed, except under expert advice after ecological studies have been conducted. This means that the Indian rhino, although it is an adaptable creature and could easily live in most parts of the



The Indian rhino is a solitary creature.

Photo—E. P. Gee.



When rhino meets rhino, anything may (or may not) happen.

Photo—E. P. Gee.

southern States of India, should not be introduced into South India except on expert advice because it has never before existed there.

(3) It has been internationally and nationally agreed that new species of fauna (and flora) from outside should not be introduced into a *national park*, where the agreed objective is to show the *indigenous* and *native* fauna and flora and not exotic species which are usually shown in zoological parks and gardens. (This also applies to wild life sanctuaries which are due to be upgraded into national parks.)

II. Expenditure

(1) The cost to a State Government of a pair of Indian rhino f.o.r. Kaziranga is said to be Rs. 50,000.

(2) To this amount must be added the cost of crating, transporting and stockading before release, making a probable total of about Rs. 60,000 to 70,000. If the pair of rhino would remain together as a pair and be on view to visitors, and breed, then the above expenditure might be justified, but see III (1) to (6) below.

III. Peculiar habits of Indian Rhino

(1) The Indian rhino is by nature a solitary creature, and if a male and a female were put into a new area they would not normally remain together as a pair but would separate.

(2) This species is a great wanderer, and the two individual rhino would normally wander far and wide and not be visible to visitors.

(3) This species is a habitual crop-raider, and rhino turned loose in a new place would almost certainly run into trouble at the hands of cultivators who would not be accustomed to them.

(4) Owing to the value of their horn, two such individuals wandering in a new area would be very difficult to watch and protect from being killed.

(5) The female Indian rhino comes into "season" only for a very short period (about 24 hours) at intervals of about 47 days, and the chances of it finding the male at the critical time in a new area would be rather remote, and therefore, mating and breeding might never take place.

(6) The male Indian rhino itself comes into "season" also, and even when a male is in close contact with a female in "season", mating may not take place. In other words very few pairs of Indian rhino are actually *breeding pairs* even in zoos, because the male and female "seasons" often do not coincide.

IV. Conclusion

To introduce or re-introduce a male and a female Indian rhino into a place which might appear to be suitable for the species to live in would be a very costly affair, and would

most probably not bring about the desired results, i.e., the rhino would probably not be seen by visitors, they might not breed, and they would run a great risk of being killed by cultivators and poachers. In addition, it is against the principles and policies of national and international conservation agencies to introduce new species into an area—especially into a national park or sanctuary likely to be made into a national park.

[See also Editorial Notes. —Ed.]

Visit by IUCN Delegation to the Keoladeo Ghana Sanctuary, Bharatpur, Rajasthan

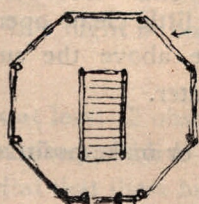
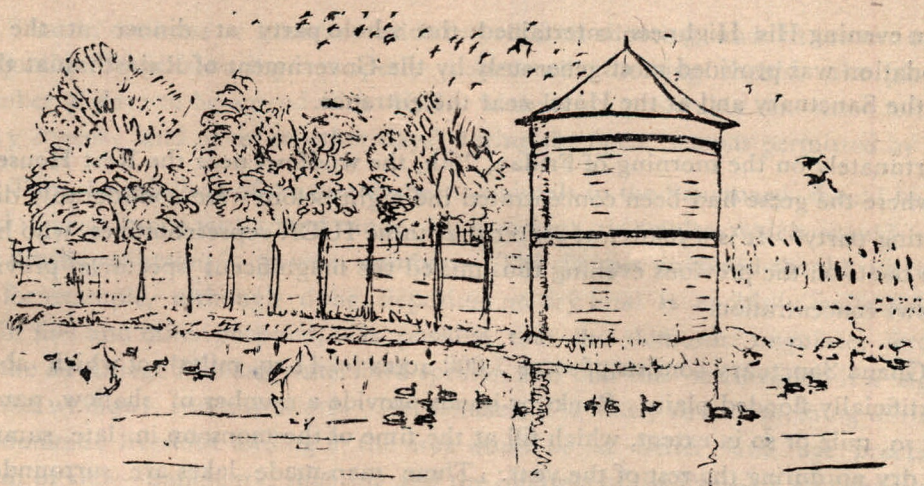
Peter Scott

A party of some twenty people visited the Ghana, arriving on Thursday, 25 November and leaving again on the following morning. Conditions at the Sanctuary were said to be unusually good, in that migrant birds from the north were already present in some strength, while due to a late monsoon the breeding colonies of storks, herons, ibises and cormorants were still occupied, many of the nests containing quite small young. During the very short period spent at the Sanctuary, (and including the journeys to and from Delhi) some 130 species of birds were identified. Also seen in the Sanctuary were Blackbuck (c. 40), Nilgai (c. 10), Chital (c. 50), Sambur (3) and Wild Boar (2). A panther was seen as it crossed the road.*

H.H. the Maharaja of Bharatpur was kind enough to take my wife and me round the Sanctuary on the afternoon of the 25th when we saw most of the waterfowl species recorded from the area, and a splendid concentration of from 3-4000 Greylag Geese, as well as 150 Barheaded Geese and large flocks of ducks of 15 species, including Cotton Teal.

During the afternoon other members of the party had no difficulty in finding and photographing blackbuck and other antelope, or went by boat to see the colonies of breeding birds in small trees standing in shallow water. These included Painted and Open-billed Storks, Spoonbill, White Ibis, Grey Heron, 3 species of White Egrets, Darters and two species of Cormorants.

*See also Table 1 on the number of wild ungulates in the Ghana, By Schaller and Spillett 'Cheetal', Vol. 8, No. 2, pp 14.



Hidden Approach Path — at least 150 yards long.

Total height
19 ft

Note. In certain
places one or
more storages
could be
added for
viewing and
photographing
of trees nesting
birds.



In the evening His Highness entertained the whole party at dinner at the Palace. Accommodation was provided most generously by the Government of Rajasthan at the Rest House in the Sanctuary and at the Hotel near the entrance.

Unfortunately on the morning of Friday, 26th, the wildfowl near the Rest House, and in the area where the geese had been concentrated the night before were considerably disturbed by a shooting party. It is a matter of regret that those IUCN representatives who had been out in the boats on the previous evening thus missed the magnificent spectacle provided by the wildfowl concentration.

The Ghana Sanctuary consists of some 7,000 acres (c. 11 sq. miles) of which about one third is artificially flooded plain. Banks or bunds provide a number of shallow pans, some of them a sq. mile or so in extent, which fill at the time of the monsoon in late summer and gradually dry up during the rest of the year. These man-made lakes are surrounded by a forest of low trees and shrubs—mostly *Acacia*, *Zizyphus*, etc. The pans are grown up with many species of water plants so that, at the time we were there, little clear open water was to be seen, though over large areas the vegetation did not rise above the surface. Some trees grew along the bunds, on small islands, and in standing water.

After so short a visit it is difficult to draw valid conclusions or make positive recommendations, but certain impressions seem worth recording.

First the Keoladeo Ghana Sanctuary can provide as fine a spectacle of large water birds as is to be seen anywhere in the world, enhanced by the presence in the vicinity of some of India's most beautiful mammals, of which three at least can be seen without difficulty by any visitor. Secondly the Sanctuary is not yet a true sanctuary among other reasons because of the considerable amount of shooting which takes place and because of serious overgrazing by domestic animals. Thirdly the potential use of the wildlife in this area as a tourist attraction, for the purposes of education and as a basis for scientific research, is capable of very substantial development at no very great capital cost. It is assumed that such development would have the approval of both the Indian Government and the Government of Rajasthan.

The following suggestions are, therefore, put forward:—

(1) That the sanctuary should be zoned to provide a demarcated area of not less than 3 sq. miles as a strict reserve or true sanctuary, in which no shooting or other disturbance should ever take place, and into which no domestic livestock may enter. It is particularly important that this area should *not* be disturbed by beaters (with or without fire-crackers) on shooting days.

(2) That in the zone or zones set aside for wildfowl shooting and in order to ensure that the quality of such shooting is properly maintained, shooting should take place on a small number of days to be agreed with H.H. Maharaja, preferably not more often than once every 2 weeks (and never on other days) during the open seasons permitted by the law.

(3) That the privilege of grazing domestic animals in the Sanctuary should be strictly controlled in accordance with sound range management principles, which would certainly involve a drastic reduction in present numbers. The factors involved should be carefully studied: for example, although dung deposited on dry land is carefully collected by the graziers for fuel and other purposes, it is possible that the domestic ungulates fertilize the water to the advantage of many water-bird species, and that this fertilization is a significant factor in the wildfowl concentrations. Nevertheless it is likely that something of the order of 1,500 domestic livestock feeding in the area would be far better land use practice from every point of view—Sanctuary, shooting and the interests of the livestock and their owners—than the present 5,600. The recent reduction of domestic grazing by excluding buffalo and cattle during the night is commended as a wise and practical limitation and should be continued.

(4) That at least 12 observation points should be constructed at very carefully selected points where numbers of birds or mammals may concentrate (or be persuaded to concentrate). It is vital that these huts be so placed, and the approaches so screened with reed walls, that observers and photographers can get into and out of the observation points without disturbing the birds or mammals which may be close-by. Details of a suitable type of hut are given in an Appendix.

(5) That disturbance to the breeding colonies of birds should be reduced by not allowing boats to go amongst the trees in the main breeding area (where observation towers would provide better facilities for photography). During our visit the boats went so close to the trees that some young birds fell into the water and were drowned. It is essential that boatmen employed in the Sanctuary should, like all other staff, be given a short training course and properly supervised.

(6) That facilities for the accommodation of tourists at the Rest House in the Sanctuary be improved and extended so as to be able to accommodate at least one busload of tourists (c. 30-35)—preferably two. Standards of comfort must conform to those expected by the majority of travellers visiting India, but this does not rule out the necessity for a proportion of simple, well-designed accommodation within the reach of lower income brackets.

(7) That the Rest House extension should include a dining room and lounge overlooking a substantial expanse of open water so that birds can be observed from these rooms

(as well as some of the bedrooms). Mammals should also be accustomed to visiting the area immediately in front of the building by the judicious siting of a salt-lick and by providing an open grass area (periodically cut if necessary) to attract ungulate species to the fresh grass. Needless to say the domestic animals would have to be totally excluded from the Rest House vicinity.

(8) That the area in front of the Rest House should be regularly floodlit during the evening. A device to allow the lights to fade *gradually* at 11.00 p.m. or midnight, rather than being kept on all night, as is the practice at the very successful Tree Tops reserve in Kenya, would probably be best suited to local circumstances and to the 2-3 night stay in the Sanctuary which could be expected to interest the ordinary tourist.

(9) That a charge of Rs. 10 per person be made for all foreign tourists visiting the Sanctuary, a contribution to the cost of its proper management which would certainly be willingly paid and indeed normally expected. Consideration could be given to introducing a token entry charge, say one rupee, for Indian nationals, if only to emphasize the value of the Sanctuary, but children under 16 should be allowed in free.

(10) That there should be no introduction whatever of exotic species into the Sanctuary. As emphasized in our general report such introductions are always to be avoided and even re-introductions or artificial amplification of stocks of existing species needs very careful study if it is not to have adverse effects on the habitat and general balance of the fauna.

(11) That facilities be provided for School Parties to visit the Sanctuary and to be shown round by guides capable of explaining its objects and describing the fauna and flora in some detail. Such visits should include access to the special observation points from which the wildlife will be seen at especially close quarters.

(12) That facilities be provided for student field study in certain specified parts of the Sanctuary.

(13) That a small research station should be established to form a focal point for all scientific studies taking place in the Sanctuary. For this purpose funds might be sought from international sources such as the World Wildlife Fund.

(14) That very complete check lists be drawn up for the Sanctuary, available in printed form for the tourist, and that 'field guides' on the Indian fauna and flora should also be available for purchase. It is of the highest importance that these should be scientifically impeccable. This need not make them in any way less attractive to the casual visitor, and the standards of the Sanctuary will be judged by the care with which this sort of literature is prepared.

(15) That as soon as the improved facilities exist (but on no account before), the Sanctuary and its unique interest should be publicized, both nationally and internationally, but especially the latter, on as wide a scale as possible.

For such publicity the assistance of many organizations is available and might well be sought, e.g.--The Fauna Preservation Society, the Audubon Society (USA), the Royal Society for the Protection of Birds (UK), the Frankfurt Zoological Society (West German Republic), the Wildfowl Trust (UK) and the World Wildlife Fund (Switzerland).

Wild Life Management In India

M. D. CHATURVEDI

(Inspector-General of Forests, Retired)

“What matters is not the trophy but the race; not the quarry, but the chase.”

I. Distribution of Wild life

1. A reference to the birds and animals living in ecological balance with their surroundings provides the background for wild life management. The environment, both animate and inanimate, determines the evolution of animal life in a given region. There is no better indicator of environment than vegetation which reflects reaction to the climatic, edaphic, and biotic factors. In the ultimate analysis, vegetation, on which all wild life depends directly or indirectly for its sustenance, determines the protective colouration, the size, the character and the distribution of birds and animals. It is their habitat from which animals derive their habits.

2. The physical regions distinguished in India for the description of its vegetation, provide the best basis for a detailed consideration of its rich and varied wild life. No less than 500 species of mammals, 1100 species of birds and 350 species of reptiles occur in the country. Of these, the Flying Lemur, which bears the same relation to the shrews as the flying squirrel does to the squirrels, and the Scaly Ant-eater reminiscent of reptiles, constitute breath taking curiosities. Another celebrity is the little Painted Bat (*Kerivula picta*)

with its vividly coloured vermilion and black wings (18). The regional distribution of wild life is outlined below:

(1) The Deccan

(a) The West Coast

2.1 The luxuriant rain forest and *sholas* support a rich and varied wild life. Species characteristic of this wet region (rainfall: 150 to 200 inches) are the Nilgiri langur (*Kashia johnii*), the lion-tailed macaque (*Macaca silenus*), the Nilgiri brown and the striped neck mongoose, the Malabar civet, and the spiny mouse. The Himalayan fauna (e.g., the thar, the pine marten and the European otter) is represented high up in the Nilgiris, suggesting former links during the glacial epoch, and subsequent isolation. Other mammals of this tract are the elephant, the tiger, and the panther. Due to high humidity the panther exhibits marked melanism.

(b) The South-east Tract

2.2 In the low scrub, and open grasslands dotted with xerophytic vegetation (rainfall below 30 inches), herds of gazelles and antelopes abound. The common associates of antelopes are the jungle cat, the common fox, the common mongoose, the Indian wolf, the palm squirrel, the hare and a variety of field rats. In Mysore and Hyderabad, where rainfall is about 35 inches, a much richer fauna consisting of the spotted deer, the wild dog, the sambhar, the sloth bear, the Indian bison, the elephant and the hyaena, is met with. The *cheetah* (the hunting leopard) once common in this tract is now extinct.

(c) The Central Plateau

2.3 The dry type of forest of these highlands supports animal life akin to the south-east tract referred to above. With the increase in rainfall (40 to 50 inches), the character of vegetation changes to what is known as the monsoon forest which is the home of the true Indian fauna comprising the spotted deer, the nilgai, the blackbuck, and the four-horned antelope. These typically Indian mammals do not occur anywhere else outside India. The Indian bison, the sambhar, and the muntjac occur both in India and in South-east Asia. Further east of Nagpur, where moister conditions prevail, we have, in addition, the elephant, the wild buffalo, and the swamp deer. The tiger and the panther occur throughout the Deccan adapting themselves to their local environments. The tiger shows marked preference to forested areas. It never crossed into Ceylon. In the Vindhya Pradesh one comes up against albino tigers occasionally.

(2) The Indus Basin

3. The fauna of the dry and xerophytic forests of this region is reminiscent of similar forests of the Deccan. In the Rajasthan desert, however, where rainfall is of the order of

10 inches or so, one comes up against the desert cat, the desert fox, the desert hare, and the desert gerbilles. On the peripheral lands, the gazelle, the muntjac and the blackbuck are common. In Junagadh, (Saurashtra) we have the remnants of the Indian lion that once frequented a large tract to the east of the Aravallis.

(3) The Gangetic Basin

4. The blackbuck and the gazelle occur in open and dry type of forests of this region. With increase in rainfall in the *tarai** and *bhabar** at the base of the Himalayas the character of vegetation changes to support the swamp deer, the hog-deer, the sambhar, the spotted deer, the muntjac, the elephant, the jackal, the wild pig, the tiger and the panther. Eastward, in the North Bengal and Assam, we have the remnants of the Great One-horned rhinoceros (*R. unicornis*) and the buffalo, the counterpart of the bison of the south. In the evergreen rain forests of Assam, the fauna of the West Coast replicates itself faithfully, including melanism among panthers.

(4) The Himalayas

(a) Western Himalayas

5.1 While many animals of the Indus Basin such as the blackbuck, the muntjac, and the gazelle work their way up to an elevation of upto about 2,000 feet, the characteristic representative fauna of the region above is the Kashmir stag, reminiscent of the European red. The *sambhar* of the foot of the Central Himalayas is conspicuously absent. Other animals inhabiting higher elevations are the ibex, the markhor, the shapu, and the snow-leopard. While the brown bear occurs in the snow ranges, lower down the black Himalayan bear is more common.

(b) Central Himalayas

5.2 The chain of low lying hills (Siwaliks) that runs almost parallel to the great Himalayas encloses a tract known as the 'dun' (between two mountains). This tract is endowed with a rich and varied flora and fauna that has attracted worldwide attention. The tiger, the panther, the elephant, the hyaena, the sambhar, and the muntjac are common. Higher up in the Himalayas, in the 5,000 to 10,000 feet zone, the Central Himalayan animals like the ibex, the shapu, the markhor and the brown bear are conspicuously absent. Here, the Kashmir stag is replaced by the sambhar. The black Himalayan bear, the musk deer, the civet and the goral are common. The panther goes upto an elevation of 8,000 feet.

*The debris washed down by the Himalayan streams spreads out in a fan formation at the foot of the mountainous region, giving rise to a waterless tract, known as the *bhabar*. Water that sinks in the *bhabar* oozes out further south giving rise to the *tarai* (moist) conditions in the tract where the debris spends itself out.

(c) Eastern Himalayas

5.3 In the moist Eastern Himalayas at higher elevations, the fauna assumes an Indo-Chinese character and comprises such forms as the racoon, the hog-badger, the ferret-badger, the crestless porcupine, the goral, the thamin deer, and the serow. The snow-leopard of the Western Himalayas is replaced by the clouded-leopard and the marbled cat.

6. It remains to be added that animals do not recognise any physical boundaries. They exhibit considerable migration not only from one region into the other but also from and into adjoining countries.

II. Wild life, a Wasting Asset

7. Wild life enjoyed in the past a measure of protection by virtue of the inaccessibility of the forest which sustained and sheltered it. The depredations of forest tribes with their traditional bows and arrows, nets and snares, drives and dogs, were hardly noticeable except on the fringes of the forest. Wild animals continued their uneventful existence until the turn of the 19th century when the British appeared on the scene with their modern weapons, and what was worse, with a licentious lust for killing which passed for sportsmanship those days. The wild life of the country had to contend with an attack on two fronts. Vast forest areas that provided a haven for wild life were given away for a song to enterprising adventurers, for raising tea, coffee, rubber, and rice for labour engaged on plantations. The forest succumbed to the irresistible pressure of planters and local population, and with it, the wild life it supported. With its cover gone, wild life fell an easy prey to high velocity rifles and double-barrelled guns in the hands of trigger-happy hunters. The dawn of the twentieth century witnessed a systematic destruction of wild life brought about by the opening up of the forest, the arrival of the ubiquitous jeep and the invention of blinding flashlights. The area negotiated by the jungle folks increased as more roads were built, and opportunities for the sale of venison increased. Netted quails and partridges found favour in many fashionable restaurants in the country.

8. Unable to fend for themselves many a species were driven to the verge of extinction. The Indian lion, which for its bravery, invincibility and regal gait, inspired the priest, the poet, and the painter alike, was wiped out of existence by the so called British sportsman of the East India Company. Upto the beginning of the 19th century, the lion stalked the Indus Plain and the Central India Highlands covering an area of about 1/4 million square miles. By about 1850, the lion was well on the way out, despite repeated protests one reads in the sporting journals of the time.* The lion is confined today to a small tract (550 square miles), viz., the Gir forest in Saurashtra. Like most protected monuments of the

*The Bengal Sporting Magazine (1833-41); the Sporting Review 1856; the Oriental Sporting Magazine, 1866.

country, the lion owes its existence to the foresight of Lord Curzon the celebrated Viceroy of India at the turn of the 20th century. During the post-independence era a second home for the lion has been found in the Benares Division of Uttar Pradesh.

9. The hunting leopard (the cheetah) followed suit. Once a pet of the Ruling Princes in their blackbuck hunts, it is now as dead as the dodo. Its unfortunate resemblance with the wily panther proved its undoing. The Asiatic Two-horned rhinoceros (*R. sumatrensis*) of Assam, and the Lesser One-horned rhinoceros (*R. sondaicus*) of the Sunderbans have gone. The Great One-horned rhinoceros (*R. unicornis*) has been saved from the hunters of its horns, prized as valuable aphrodisiac, by declaring it as a protected animal and nursing it in the Kaziranga Sanctuary in Assam and Jaldapara Sanctuary in West Bengal. In West Pakistan, the days of the straight-horned markhor are numbered. The Urial of the Punjab is likewise threatened. The wild buffalo is no longer to be seen in areas to the east of the Godavri. The pink-headed duck is gone for good. The monal, the tragopan and the peacock are still with us because a rigid control on the export of their feathers has been enforced.

10. It may be noted that during the last 2,000 years, the world has lost 77 species of mammals. Of these, 39% have disappeared since the turn of the 20th century (24.1). It is not sufficiently realized that once a species, more particularly a gregarious one; begins to go downhill, its rehabilitation becomes extremely difficult. And, yet there is no natural resource that reacts so readily to protection as wild life, provided it is not allowed to cross the critical stage when recovery becomes difficult, if not impossible.

11. In India, the following species have already entered a critical stage of their existence.

(a) Mammals

- (i) Snow and clouded leopard
- (ii) Indian wild ass
- (iii) Kashmir stag
- (iv) Musk deer
- (v) Markhor (Kashmir)
- (vi) Thamin, the brow-antlered deer of Manipur
- (vii) Pigmy hog

(b) Birds

- (i) Great Indian Bustard
- (ii) Monal
- (iii) White-winged duck

The list is not exhaustive. Some game animals have reached the verge of extinction in a given locality, but hold their own in another one.

III. Man and his Environment

12. The clash between the interests of Man and Animals must be resolved in a rational manner. Wild life management does by no means envisage the preservation of all animals regardless of their role in the economy of the countryside. Predators that destroy the field crops and prey upon other animals have to be kept under control. The claim of the forest which supports wild life rests on both the physical and economic grounds. Reckless destruction of the forest leads to the deterioration in the physical field which adversely affects the productivity potential of the soil. With diminishing crop returns and more and more mouths to feed, the forest has to yield to the axe and the plough for raising more food. This causes further deterioration of the physical environment and consequent diminution in crop returns, resulting in even greater demand for forest land, and establishing thereby a vicious circle from which there is no escape. The solution of India's food problem lies in intensive, not in extensive agriculture. Land use in India is to be modified, therefore, in the light of the productive, protective and social roles of the forest in the balanced economy of the country. Land is to be permanently dedicated, therefore, for the maintenance of the forest and its colourful denizens.

IV. Wild life Legislation

13. The protection to wild life was enjoined as far back as the 3rd century B.C. by Emperor Asoka. On his Fifth Pillar Edict are inscribed names of birds, beasts*, fishes and insects which were to be preserved. The Edict further ordained the protection of the forest from fires. Later, the Moghul Emperors evinced considerable interest in wild life. No one was allowed to hunt the lion except the royalty. The memoirs of Jehangir read like a treatise on wild life.

14. During the British regime the destruction of wild life at the hands of trigger happy hunters reached alarming proportions resulting in the adoption of stringent measures. In 1887, the Wild Birds and Animals Protection Act was passed. It was subsequently repealed by Act VIII of 1912. The Forest Act XVI of 1927 dealt with the regulation of hunting and fishing inside the State forests. The game laws enacted sought control over poisoning, netting, snaring and pitting of animals and birds. 'Close' periods for various species were specified. Grant of licences on payment of nominal dues was introduced. A special act for the protec-

*The mammals mentioned in this edict are:— bat, monkey, rhinoceros, porcupine, squirrel, swamp deer, bull and all 4-footed animals not utilised or eaten.

tion of elephants was also passed. Various States enacted game laws of their own, e.g., The Punjab Wild Birds and Wild Animals Protection Act of 1933; the Bombay Act XXVI of 1951, etc. In the Uttar Pradesh, the National Parks Act was passed in 1934, under which the Corbett Park was originally constituted.

15. Poachers have always been hard to apprehend and even harder to be convicted. It is necessary that the burden of proof in the case of offences against game laws should be on the defence, and punishments and penalties should be adequate to prove deterrent.

16. Prevention of killing for trade and profit constitutes the key stone of preservation. Trade in animal products should be put down with a heavy foot. It is the gun accompanied by greed that spells destruction to wild life. Birdlife has suffered considerable damage due to the dreadful plumage trade. The Great Indian Bustard is on the way out. While the monal pheasant and the tragopan in the Himalayas have been saved by the ban imposed on the export of their feathers, the peacock, the black partridge, egrets, jungle cocks, paddy-birds, king fishers, jays and rollers, orioles and a host of other birds have likewise been given a lease of life by putting a stop to the lucrative trade in their feathers.

17. A special feature of the Indian game laws is that they largely relate to hunting inside the State forest. Game outside does not get similar protection due to want of an organisation for game preservation.

V. Public Opinion

18. While there is little to be desired in the matter of enactment of game laws, there is almost an unbridgable gap between legislation and its implementation. Reliance on deterrents, penalties and punishments is of little avail without healthy public opinion against the insensate killing of voiceless denizens of the forest. Public interest must be aroused to the pitch of revolt against the wanton destruction of the valuable asset that India has in her colourful wild life. The cultural, ethical, aesthetic, recreational and sporting aspects of wild life deserve a wider recognition than is usually accorded. In order to mould public opinion we must begin at the beginning and catch people young. Animal stories, photographs, pamphlets, posters, films and lantern slides should be utilized in advancing the cause of wild life in schools and colleges. It is the rising generation that should be enthused with a missionary spirit in the protection of our rich and varied heritage in our wild life. It is to be noted that it is public opinion in India which protects monkeys, parrots, peafowl, fish, pigeons and nilgai.

19. Paradoxical as it may appear, the staunchest support for the preservation of wild life comes from those who indulge in its destruction, viz. the *shikaris* in India and from the *safaris* in Africa. Everyone kills the thing he loves: the proud by possession, the poet by faint praise,

the biologist by giving it a Latin name, and the sportsman with a gun. There are only two tragedies in the life of a sportsman: one not getting the trophy he wants; and, the other more serious one, getting it. There is nothing so heart-rending as not getting the tiger you are after want; and, yet there is nothing so heart breaking as finding the handsomest of God's creation lying at your feet reduced to stinking mass of flesh.

VI. The Bombay Natural History Society

20. For its preservation, the wild life in India owes a debt of gratitude to the Bombay Natural History Society which through its journal and other publications has sought to stimulate public interest during the best part of 75 years. It was largely through its efforts that game laws were enacted and modified from time to time. The part played by the Zoological Survey of India in advancing the cause of wild life has by no means been small. Various Game associations (The Nilgiri Game Association founded in 1879, the Bengal Fishing Association, the Madras Games Association, 1933, etc.) have exercised control on shooting and fishing and set up a standard of sporting ethics. The Wild Life Preservation Society of India, is also doing much for the cause.

VII. The London Convention, 1900

21. The genesis of the movement for the preservation of wild life goes back to the year 1900 when the British Government convened a conference in London for the purpose. This celebrated London Convention for the preservation of wild life in Africa was signed by France, Belgium, Italy, Spain, Portugal, and Great Britain. It has since come to be regarded as the Magna Carta of wild life in Africa.

VIII. International Conference for Protection of Nature, 1913

22. In 1913, an International conference for the Protection of Nature was held in Berne (Switzerland) at which 17 countries were represented. A central organization to deal with wild life on an international plane was proposed. The World War I, however, intervened and the recommendations of the Berne Conference were not implemented until 1928 when a Central Wild Life Bureau was established at Brussels. It was called as the International Office for the Preservation of Nature: I.O.P.N. (18 (2)).

IX. The International Conference, Paris, 1931

23. It was as a result of the efforts of this organization that an International Conference for the preservation of wild life was held in Paris in 1931. Mr. Ramsay Macdonald, the then Prime Minister of United Kingdom sent the following inspiring message to this Conference:

"In the territories for which they are responsible His Majesty's Government in the United Kingdom regard themselves as trustees for the Protection of Nature, not only in

the interests of their present inhabitants but in those of the world at large and of future generations."

"The wonderful fauna and flora with which Nature has endowed the world have already suffered grave losses. Animals and plants of great scientific interest and often of great beauty have been exterminated, objects of great geological interest have been destroyed and the beauties of Nature defaced. Lovers of Nature may do much to stem the process, but if their object is to be secured the active cooperation of Government is essential" (12 (1)).

X. The London Conference, 1933

24. Soon after, another international conference was held in London in November, 1933. At a dinner of the African Society held in London on November 13, Prince Leopold of Belgium observed:

"The protection of Nature raises problems of universal importance, the evolution of which cannot be left to the initiative of isolated groups whose action is necessarily limited, and who are unable to enforce in their entirety, the effective measures of preservation which are necessary.

"The State alone can and must take responsibility for a protective organization which will command the interest of all mankind in its moral, social, economical and cultural development; and, thus the political aspect of the question becomes apparent."

25. At this London Conference, India sent an observer. The deliberations of this conference aroused a great deal of interest in the protection of wild life throughout the British Empire. A Society for the Preservation of the Fauna of the Empire was formed with branches in India, Burma, Ceylon and of elsewhere. In the Punjab, new game laws were enacted in 1933; in the Uttar Pradesh the Hailey National Park now CORBETT Park was brought into being by an act of legislature in 1934. About the same time the Journal of the Bombay History Society sponsored a series of contributions on the preservation of wild life (24.III).

XI. The Delhi Meeting, 1935

26. In 1935, wild life enthusiasts from all over India met at New Delhi to devise ways and means for the preservation of wild life. Before the recommendations of this august meeting could get under way the second World War broke out.

XII. The I.U.C.N. 1948

27. After the cessation of hostilities an International Union for the Conservation of Nature and Natural Resources (I.U.C.N.) was set up under the aegis of UNESCO at its

meeting held at Fontainbleu in 1948. It aimed at the conservation and wise use of "the entire world biotic community or Man's natural environment which includes the earth's renewable natural resources.....". On September 20, 1951, at the inaugural address of the I.U.C.N. at Hague, Mr. Van der Goes Van Naters summed up the situation succinctly in the following words:

"The Protection of Nature has passed from the concept of a simple establishment of reserve areas to that of a rational management of an entire region, in full harmony with natural laws. It is mixed with town planning, with the science of land utilization, even with social sciences to become more and more a chapter of human ecology".

XIII. The Indian Board for Wild Life, 1952

28. Nearer home, Lieut.-Col. R.W. Burton entered a plea for the wild life preservation in the Journal of the Bombay Natural History Society (4). At the instance of the I.U.C.N. the Government of India appointed an *ad hoc* committee with the writer as its Chairman, to consider ways and means for the preservation of wild life. It was on the recommendation of this Committee that the Indian Board for Wild life was constituted by the Government of India. The Resolution (No. 7-110/51-R dated April 4, 1952) on the subject stressed the need for such a Board in the following terms:

"India's heritage of wild life is fast becoming a vanishing asset and some of our notable animals (and birds) such as lion, rhinoceros, cheetah, tragopan are on the verge of extinction. With a view to preserve the fauna of India and to prevent the extinction of any species, and their protection in balance with natural and human environment, Government of India are pleased to constitute and appoint a Central (later, Indian) Board for Wild Life."

The functions of the Board are laid down as under:—

- (i) to devise ways and means of conservation and control of wild life through coordinated legislative and practical measures with particular reference to seasonal and regional closures, and declaration of certain species of animals as protected animals, and prevention of indiscriminate killing;
- (ii) to sponsor the setting up of National Parks, sanctuaries and zoological gardens;
- (iii) to promote public interest in wild life and the need for its preservation in harmony with natural and human environment;
- (iv) to advise Government on policy in respect of export of living animals, trophies, skins, furs, feathers, and other wild life products;
- (v) to prevent cruelty to birds and beasts caught alive with or without injury; and,

(vi) to perform other functions as are germane to the purpose for which the Board has been constituted.

29. The Board is to meet once in 2 years. It has been authorised to appoint technical committees to report on specific problems. His Highness the Maharaja of Mysore, a staunch supporter of Wild Life was appointed as the Chairman of the Board, the Director of the Zoological Survey of India as its permanent ex-officio Secretary and the Inspector-General of Forests as an ex-officio vice-chairman. Three regional secretaries were appointed to look after the wild life affairs in their respective regions. Among the members of the Board were:—

I. Organisations:

- (1) Zoological Survey of India
- (2) Geological Survey of India
- (3) Botanical Survey of India
- (4) State Forest Departments
- (5) Zoological Gardens
- (6) Fisheries
- (7) Bombay Natural History Society
- (8) National Institute of Science
- (9) Ministry of Natural Resources and Scientific Research
- (10) Ministry of Transport
- (11) Bengal Natural History Society

II. Noted Sportsmen, keen wild life supporters and wild life enthusiasts.

30. The inaugural meeting of the Board took place on November 25, 1952 at Mysore. Ever since the Board has met every two years. Later, a Bird Wing and a Zoo Wing were added to the Board, and associate membership of the Board was created.

31. Ever since its creation, the Board has performed signal service in the cause of wild life. In States, wild life organisations have been set up that mirror the constitution of the Central organisation. In some States separate wild life organisations have been constituted. Other non-official organisations include the Wild life Preservation Society of India which has a magazine of its own, viz., the Cheetal. At the Forest Research Institute, Dehra Dun, a wild life club has been formed.

XIV. National Parks

32. Among the various activities of the Board, the constitution of National Parks, Sanctuaries and Zoological Parks in various States has been of the greatest importance in

advancing the cause of wild life. The distinction between these wild life refuges is as under:—

(1) The National Park denotes an area permanently dedicated by statute to conserve Nature in an unspoiled state* for the enjoyment of the existing generations, and that of the generations to come. The term 'Nature' connotes not only wild life but also scenery, forest and objects of national (e.g., geological, historical, archaeological) interest.

(2) Sanctuary denotes an area declared as such by competent authority with a view to conserve wild life, in particular to nurse species threatened with extinction. Thus, the rhino sanctuary in Kaziranga (Assam), the lion sanctuary in the Gir forest, the Rajaji sanctuary in the Siwaliks where protection is sought generally for all animals. Very often, the rehabilitation of a species is secured by declaring it protected in a given locality. Some tracts require special protection, e.g., canal banks, water holes, salt licks where wild life congregates. (10(3)).

(3) In India there are 72 National Parks and sanctuaries covering an area of nearly 7,700 sq. kilometres.

(4) Zoological Parks are Gardens where animals are kept in confinement. In Zoological Parks conditions secured for the housing of animals aim at being similar to those which obtain in their natural habitat. Large enclosures with camouflaged confines replacement structures and revolting iron railings of the conventional zoos.

33. In the U.S.A., the first National Park (Yellow Stone) was established way back in 1872 by an Act of the Congress. At present there are 28 National Parks covering an area of about 13 million acres. They are a Federal concern. The National Parks service was created in 1916. Sanctuaries in the U.S.A. are known as Wild Life Refuges. In S. Africa, the Union Government passed the National Parks Act in 1926. There are at present 5 National Parks, the biggest 'Kruger' covers an area of 8,000 sq. miles. Switzerland has a National Park in the Engadine. Sweden has 14 National Parks. Finland and Austria have established numerous reserves for the protection of wild life. Poland and Czechoslovakia have created a common park on their border (Tatra). In the Congo, Parc National Albert was created in 1925 and subsequently enlarged. (18 (2)).

*1. The loss of revenue involved in keeping large areas of forest unexploited is reduced by declaring only a small unit as 'sanctum sanctorum' inside a National Park or a sanctuary, where plant life may be preserved in its virgin state without any human intervention, e.g., Bandipur, Mysore, Special 'preservation plots' of species of botanical interest may be constituted for the study of their evolution with or without protection of wild life, e.g., Ramnagar, U.P.

2. Nature reserves are constituted to preserve landscape areas of great scientific interest or scenic beauty. These conservation areas form a second line of defence.

Government passed the National Parks Act in 1926.

XV. The Indian Board's Achievements

34. During recent years of its existence the Indian Board for Wild Life has concerned itself with:—

- (1) Declaration of protected animals, and vermin* to be kept under control. Protection of breeding grounds of birds getting scarce, e.g., Great Indian Bustard.
- (2) Control of export of wild life and its products.
- (3) Control of imports. Quarantine.
- (4) Periods of rest. Close seasons.
- (5) Cooperation of leaders of public opinion, noted naturalists and sportsmen secured through membership of regional wild life associations. Appointment of Honorary Wild Life Wardens.
- (6) Revision of Game Laws with a view to prevent destruction of wild life by
 - (a) shooting with blinding flashlights and headlights;
 - (b) shooting at salt-licks, water holes;
 - (c) control of arms, particularly of crop-protection guns;
 - (d) indiscriminate shooting, limits to bags;
 - (e) snares, pits, poisoning, drives, dogs.
- (7) Drawing up of model legislation for the guidance of States, e.g., National Parks Bill.
- (8) Wild life studies.
- (9) Publicity. Education of public opinion. Pictorial charts. Pamphlets. Inclusion of wild life in schools and colleges more particularly in the curricula of forest colleges. Films. Photographs. Broadcasts. Postage stamps. Magazines.
- (10) Exchange of animals. Barter.
- (11) Care of animals in zoos.
- (12) Rehabilitation of species on verge of extinction, e.g., a new home for the lions; for the rhino.

*According to Section 9 of the Bombay Act XXVI of 1952, the following species are classed as vermin:

- (1) Mongoose, (2) Civet cat, (3) Wild cat (excluding tiger, lion, panther, Cheetah (?), (4) Wild dogs, (5) Wild pig, (6) Rodents (excluding hare, giant squirrel, and flying squirrel), (7) Jackal, (8) Monkey, (9) Bat, (10) Crow, (11) Birds of prey (excluding vulture).

No permit is required for shooting these animals and birds. It should be remembered that they are not to be wiped out of existence. One should not forget that shark—the scourge of the sea—gave us insulin.

- (13) Participation in international organisations for preservation of wild life.
- (14) Control of fishing. Provision of fish-ladders in canal dams for the migration of fish upstream.
- (15) Census of animals.
- (16) Coordination of wild life preservation with neighbouring States.
- (17) Prevention of cruelty to animals: domestic, wild, confined.
- (18) Celebration of Wild Life Week throughout the country.
- (19) Wild Life Conservation Pledge for the Youth of the Land.*

XVI. Finance

35. Organizations set up for the wild life preservation throughout the country have one thing in common, viz., they all suffer from the paucity of funds. No organization can subsist only on the enthusiasm of its supporters. Of late, both the Centre and the States have shown increasing awareness of the wild life problems and have allotted funds for the purpose which could at best be described as meagre. A Game Fund should be created both at the Centre and in the States to which should be credited income from the following sources:

- (i) Sporting arms. Licences. Import duty on arms and cartridges.
- (ii) Game licences. Fishing permits.
- (iii) Entrance fees to National Parks, Sanctuaries, Zoos.
- (iv) Fines, forfeitures and sale of confiscated animal products.
- (v) Collections during the Wild Life Week.
- (vi) Contribution from the Government.
- (vii) Sale of animals and birds.
- (viii) Export duty on animals and animal products.
- (ix) Royalties on sale of elephants caught.

37. In the U.S.A., the Game Fund was an integral part of the game and fishing laws. The rehabilitation of wild life in Pennsylvania, which was on the way out in 1890, was largely financed by this fund. The Wild life Restoration Act of 1937 allotted to the States Funds, sums out of 11% excise tax levied on arms and ammunition. The Wild Life Commission in Malaya recommended likewise the creation of a Game Fund (24 v).

*The pledge is as under:—

"Born and bred in the land of Buddha and Gandhi, I give my solemn pledge to protect our country's forests and their voiceless denizens from wanton and wasteful destruction."

XVII. Fundaments of Wild Life Preservation

36. For wild life protection we must have:--

- (1) Enlightened public opinion
- (2) Adequate funds
- (3) Game Laws, Deterrent penalties
- (4) Adequate staff
- (5) National Parks, Sanctuaries, Reserves, etc.

XVIII. Cultural Aspect of Wild Life

37. The cultural development of a country is not only judged by its arts and architecture, philosophy and literature, but also by how it preserves its historic heritage and its natural resources. Forests and wild life should be raised to the national status of museums, operas, theatres, and architectural monuments which provide inspiration to the public, in addition to the revenue for the exchequer.

Management of Catchment Areas for Wild Life

By

P.D. STRACEY

The problem of the proper maintenance and utilisation of the catchment areas of the many dams which are being constructed in India today has got to be faced sooner or later. It is only too likely that the planners have given this aspect of the problem very little consideration when the idea for a particular dam, whether for flood control, irrigation or hydro-electric power development, has been mooted. The engineers who have to build the project may have given the question a little more thought than the planners, but their point of view is possibly somewhat restricted to the technical aspect of their task. From time to time alarming reports or forecasts of the shortening effect on the life of an expensive dam, through the filling up of its reservoir by sediment, as the result of un-restricted erosion of the catchment area, are made.

The voice of the forester and soil conservationist has so far been a cry in the wilderness, whenever he has tried to draw attention to the dangerously denuded condition of most of the catchment areas of the big dam schemes in India today.

Government may or may not be the owner of the land within a catchment area, and where the latter is the case the problem is more complicated. Conditions may be uniform throughout a particular area or may vary according to its size, topography, and agricultural or pastoral status, and will depend largely on the particular political and social conditions prevalent. In the case of forests these may be well-managed Reserved or Protected forests, or Malguzari forests situated on government waste lands and subject to excessive grazing, burning and cutting. Not all forests as such are adequate to stop erosion, and a forest which from the air presents a perfectly safe appearance from the protective point of view may, beneath the tree canopy, consist of "gully heads festooned with the exposed roots of undermined trees." Depending upon the elevation, the topography and the climatic conditions, the possibility of retaining under complete forest cover the uppermost ridges of the hills, while the middle slopes are permitted for terrace-cultivation and the lowest slopes are again kept under forest cover, may be considered. This is the ideal arrangement for all categories and conditions of hills. Forest cover on the topmost ridges of a range of hills, provided it extends over a relatively wide elevational range, ensures a sufficiency of water for terrace-cultivation below.

In addition the resources of the soil conservationist will be called upon to achieve improvements. In feeder streams, as well as in the main river up-stream, such engineering structures as timber cribs, stone spurs both permeable and impermeable, stone pitching of embankments, revetment walls, and debris-catching structures made of local materials may be necessary. The removal of debris which impedes the flow of water thereby causing erosion, bank-cutting and silting, and the removal of trees in danger of falling into the streams, also come under this head. The problem here is both to contain the streams between their banks and to control their run-in rate of water into the catchment. To supplement these projects such soil-conserving and water-holding measures as planting of trees on spoil banks, diversion ditches, contour strip-cropping and rotational cropping, fencing from cattle and goats, etc., will be required.

Large catchment lakes provide ideal refuges for water-fowl though the fluctuation of water level, both daily and seasonal, causes periodic drying of the shallow, marginal areas, thus preventing the growth of the vegetation required as food for such birds. These sites are barren mud-flats for a certain part of the year and no vegetation will flourish on them unless means are devised to control the fluctuations and to minimise them. This could be achieved by the building of dykes across shallow bays and inlets of the lake and the use of balancing

reservoirs with sluice-gates to control the water levels. Once the water margins are stabilized it is possible to sow seed of grain species, if necessary even from the air, to attract ducks, geese and other migratory or non-migratory sporting birds, thereby enhancing the attraction of the site. Control of grazing on the shore line by fencing will ensure non-disturbance to such aquatic species and non-spoiling of their feeding grounds.

Lake edges that slope rather steeply into the water and which are subjected to wave-action are unlikely to provide suitable habitat for wild-fowl due to the selective removal of the finer particles of soil and their deposition further away from the shore line, the coarse sand particles which are left providing a comparatively sterile growth—medium for vegetation of the type required. The geological nature of the parent rock and the nature of the agricultural practices on the up-lands also influence this question—gneissic and granitic rocks which provide higher proportions of sand in the soils are less favourable than phyllitic and schistose rocks of clayey origin, while the leeching out of fertilisers added to the soils higher up provides more favourable balances between essentials for plant-growth at the lake edges lower down.

Still water conditions are least conducive to good wild life habitat. Properly managed expanses of shallow water provide the best and most productive habitat for water-fowl. It follows, therefore, that only the more shallow inlets and bays in a mountain lake can be utilised for the purpose. In the deeper bays, suitable water-level regulating structures will require to be installed if wild-fowl habitat is to be created. The object should be to create 'marshes', in which vegetation of the suitable type can flourish and even wild rice can be grown. This can be achieved by the construction of small dykes and dams across the mouths of inlets as mentioned previously, which will in course of time bring about siltation and shallowing of the sites. Even after this is done intensive cultivation of the plant life that is required will sometimes be necessary. The addition of suitable quantities of elements in the form of soluble salts to the water will ensure the necessary balance of food material for healthy plant growth. Wet rice may require five times the amount of iron required by a dry cereal, but excessive iron is very harmful to marsh crops. Excess iron can be taken up by calcium, sulphur and organic matter, while the oxygen given off by the roots of aquatic plants forms a barrier to surplus iron entering the plant system.

For birds which do not necessarily use the water continuously, the planting of trees on earth banks and 'erosion scars' not only creates shelter for such species but assists directly in the control of soil loss. In such plantings species which bear edible fruit which will attract non-aquatic birds could be usefully tried.

Most forms of wild animal life can be safely and with benefit encouraged in catchment areas, particularly where the human factor is minimised. Such animal life can offer great attractions to the tourist and sportsman. An excellent example of this is the Periyar Wild

Life Sanctuary of Kerala where bison, elephant, deer, tiger and wild dog roam on the forested, grassy hills constituting the catchment of the Periyar lake, affording a unique tourist attraction.

In all drowned valleys where there has been tree forests, the problem of the drowned trees and the serious impediment they offer to navigation, fishing and the use of the foreshore is a troublesome one. The dismal appearance of the drowned trees in the Periyar lake of Kerala and the dangers which they present to navigation by motor-boat are an example of this. Complete exploitation and extraction of all tree species under such circumstances is seldom possible and the estimates for dams may not be able to stand the heavy expenditure entailed in felling non-utilizable timber. The use of explosives to fell trees is, however, a possibility and the cheap application of such methods, and also of mechanical means of clearing timber by bulldozers and chains preparatory to flooding, is worth investigating.

Large expanses of water impounded in the mountains and hills are irresistible attractions to the public, and the complete exploitation of such lakes must find place in plans for catchments. The construction of roads to dam sites is automatic, but apart from inspection bungalows for official purposes little thought for the tourist and visitor appears to have been given up to now with a few exceptions, such as the Periyar lake and the Krishnarajasagar dam in Mysore. The construction of public hotels and the laying out of beautiful terrace-gardens which are illuminated at night can provide great attraction not only for the locality but for the whole State and even beyond. Such facilities, however, are to be provided not only for the wealthy but also for the common man. Boating, fishing, swimming and shooting, etc., are all possible in our big-dam, catchment areas and will all help in drawing attention to the problems of ensuring to them an adequately long service life through rational treatment.

The Vanished Swampdeer Herds of North Kheri

KUNWAR ARJUN SINGH

The tragedy of the swampdeer is the poignant recital of a fate which has overtaken many of nature's once abundant species. The final chapter has not yet been written, but, may be the epilogue is not far off. Homo Sapiens has perfected the arts of destruction and glories in its refinements, but is powerless to reinstate the meanest of Nature's creations.

The end of a species is not merely through physical obliteration, though this often does play the dominant role. Combined is the destruction of habitat, the diminution of food supplies and grazing grounds, and its ultimate impact on regeneration. The decline may be gradual for non game animals, but is swift where human interest is involved. Animals are adaptable to changes in habitat and environ to a large extent, but the massive invasion of the domain of the swampdeer has its own sorry tale.

The swampdeer lives in marshy and open grassland and is essentially an animal of the wide open spaces. They love the sun, and once the grasses are burnt from February onwards, and the new shoots start sprouting they can be seen in large herds sunning themselves, which they seem to do in the hottest of weather. Essentially gregarious, their herds were once numbered in thousands. After the 'rut' which commences mid-September, the sexes temporarily segregate and schools of stags and hinds may be seen from February onwards. The antlers are shed generally from March onwards, but can be hard in May.

Originally the swampdeer suffered as a game animal. Being resident of country which could be traversed by elephant, and with the trophy animals in hard horn during the winter months, large scale vice-regal shoots, and those of lesser liminaries were held, chiefly by the Singahi Zemindari. Their large stable of elephants were instrumental in the wholesale massacre of warrantable stags. The heads were cut off and the carcasses left to nature. However though these shikar 'orgies' were a prolonged stage, and the breeding was left largely to immature males the consequences do not seem to have been so disastrous, as large herds were visible even after Independence.

Post-Independence-came land-hunger, the Grow More Food Campaign and the ad lib issue of gun licences for crop protection, political suffering—on which even convicted criminals cashed in, and general patronage. To this list have now been added the omnipresent Chinese threat and the Defence Fund. Combined with the general laxity which prevails in the enforcement of Wild Life Rules the swampdeer is now driven to a last ditch stand, and the next few years may well be critical ones for its large scale survival.

The food situation has paramountcy in any development programme and the fact that areas once the home of dacoits and malaria have been colonised by hardy pioneers from the

Punjab and has brought cultivation to the fringe of the Reserved Forest, is a laudable achievement, but has also brought concomitant disaster to the swampdeer. Its habitat has been reclaimed. Never largely destructive to crops, their presence is an excuse to slaughter them. The meat and hide though of poor quality has a market value in these days of soaring prices. The famous Mirchia Jheel once the home of countless herds, may produce the odd female in a mornings outing on an elephant. Ghola appears to have been the final stronghold. 3000 acres in area it used to be the shooting preserve of L.D.W. Hearsey in the 'Bad Old Days' ! After Abolition it was leased as agricultural land by big farmers, but being in the shape of a cup with about 300 acres of marshland in the center and subject to annual flooding only the periphery was cultivated, and the swampdeer thrived in comparative security. With the land ceiling bill suspended like the Sword of Damocles these large holders were willing that Government should acquire the land as a swampdeer reserve, as there were an estimated 2000 animals when the offer was made about 4 years ago.

At the first Meeting of the State Wild Life Board in July, 1964, I suggested that Ghola be acquired by the Forest Department, and with the contiguous grassland of the Dudwa Block in the North Kheri Forest Division, should be declared as sanctuary. The Board was pleased to recommend that Ghola be acquired with immediate effect, and that the question of the formation of a portion of the contiguous Dudwa grassland into a Sanctuary be examined by the Chief Conservator of Forests. There the matter rested, and still does. No acquisition proceedings were initiated despite repeated reminders to the Chief Wild Life Warden, whose hands are themselves tied by dilatory red tape. Smaller land holders have in the meanwhile moved into Ghola. Knowing that possession is nine tenths of the law and have routed the remaining 600 which was the estimate in 1965 of Dr. Schaller an eminent ecologist. Some of the animals have moved into the adjacent Dudwa, and attracted by some artificial salt licks which I have constructed, and the timely burn of grass some 200-250 are locally resident near the junction of the Soheli with the Neora river. Final extermination may still only be in abeyance, as mushroom cattle station still compete for fodder, and the presence of a myriad bony scrub cattle is a constant threat of disease which can wipe out what is left, and an encroachment which may well effect the reproductive processes. The issue of shooting permits may be an encouragement to some trigger happy 'sportsman' to shoot them or the chital which habitually associate with them.

I, therefore, strongly urge once again that the proposed Dudwa Sonaripur Sanctuary be declared forthwith and cattle stations be given alternative grazing sites. Posterity will never forgive the extermination of this beautiful and spectacular deer.

Wild Elephants in the Nilgiris

MARGARET DAVIDAR

I have been in the Nilgiris for 11 years now. From long vacations down to brief weekends my family and I have spent almost all holidays camping, mostly in the jungles in the "low country" of the Nilgiris, that is the lower plateau to the North of the main Nilgiri range where the Mudumalai Wild Life Sanctuary and the Sigur forest reserve are. When we first started going there we found traces of elephants here and there. But now we not only see signs of elephants everywhere but keep running into them in the most unexpected places. So greatly have they increased.

The elephant has virtually no natural enemy. Man is its only enemy and it cannot be shot here lawfully unless it is a proscribed rogue. Such proscriptions are rare. This coupled with the animal's long life span is the principal reason for the increase.

We became so fond of this area because of its excellent climate and its wild life concentration we decided to have roots there. We came upon an ideal site on the banks of the Sigur River and built a house there. This was a year ago and since then we have spent almost all our holidays there in preference to any other place. There cannot be surer baits for elephants than water and bamboo. We have both in fair quantity. A number of elephants mostly solitaires come our way and some stay on for days and weeks together. Thus we have ample opportunities of studying these fascinating creatures at fairly close quarters. We live on such intimate terms that we have had them pulling down our outdoor toilet and walking through our kitchen garden, both within a few yards of the house.

I knew that the elephants are great eaters consuming large quantities of grass leaves, bark, etc., every day. What I did not know was they were greater wasters. Some nights we hear elephants breaking bamboo all around and in the morning when we go and inspect the damage done, we would hardly find one bamboo out of every ten they had destroyed eaten. They seem to enjoy pushing trees over, just to feed on the few tender shoots at the top. The noise of large trees crashing down to earth is frequently heard. With such wasteful eating habits I am sure they will soon be eating themselves out of existence if left unchecked.

There is a hamlet a mile to the North of us and a smaller one to the South at roughly half the distance. The hilltribes residing in both eke out a precarious living by cultivating pulses like ragi and cholam. At night sound travels far. When the crops are coming up the nights are full of exciting sounds—sounds of "rockets" and big crackers being fired, of drums and trumpets, of people yelling, of dogs barking and of an occasional muzzle loader or

shotgun going off. When the excitement is greatest you can be sure, it is an elephant that is trying to break into a field, that is the cause. It is not always that the ryots succeed in repulsing these attacks. When the raiders make a determined attack, there is nothing that these unarmed watchers can do. In a short while months of labour put in by these poor people is gone, as I have myself seen. Our neighbour, is trying to raise some ragi in the field adjoining our property. Early one night a small herd of elephants broke into the field and we could hear the elephants busily and methodically, hitting the uprooted plants against their knees. This they do to get rid of the earth clinging to the roots before eating. It was quite early and there was no one watching the field at that moment. So my husband went over to the field with our servant and they both raised a din and threw stones and clods of earth at the elephants. But it had no effect whatever on them. He returned to take some crackers of which we keep a stock and I persuaded him to take me and this he very reluctantly did. When I flashed the torch in the direction of the feeding elephants I could see 4 elephants, 2 bulls, one with a very large pair of tusks, a cow and a calf. I watched them fascinated. The cow apparently did not like it, cocking its ears it came towards us menacingly and we beat a hasty retreat. My husband went back and threw a string of crackers at them. These went off like machine gun fire and as the elephants were not probably used to them they fled. They, however, returned in the early hours of the morning and caused further destruction. I surveyed the damage the next morning. It was a heartrending sight. One corner of the field had been laid waste. More ragi had been trampled down than eaten.

Previously we used to hear of killings of men and women trampled or gored by wild elephants once or twice a year. But now, these killings are more frequent. Invariably solitary bulls are responsible for these deaths. These are usually young or very old bulls that come out or kept out of herds. They are by nature morose and ill-tempered. Their temper does not improve when they get peppered with buck shot during their raids on cultivated fields. Naturally, some of these wounded beasts turn dangerous and even vicious. People in our area dread meeting one of these ill-tempered brutes. So far as we are concerned we dare not go near the bamboo between sunset and sun rise. And even during the day we have to exercise very great care in going through the bamboo. My husband has already had two brushes with elephants and one massive tusker very nearly succeed in catching some of our women labourers right in front of us. But that is another story. For the misdeeds of a few, elephants as a class have earned a bad name and are alienating public sympathy.

I like elephants and in their defence I would mention this. In some cases this increase in the elephant population is only illusory. Elephants which have lost their homes to dam builders, cultivators and just plain dispoilers of forests have to migrate to new homes and

the jungles that are left capable of holding them are few. Wild elephants which once ranged over the greater part of the subcontinent unrestrained are now confined to a few pockets of jungle. Even here they are not left alone. As man's hunger for land grows, the elephant has to make way. As forests and with it, the elephants natural food vanish the elephant has to increasingly depend upon food grown by man.

It is a clumsy killer and half the killings are accidental. As contact between man and this gigantic animal grows accidents are inevitable.

As much as some of us would like to see as many wild elephants as possible around, it must be realised that with our dwindling jungles, this is neither possible nor practicable. Before they become a nuisance and people start clamouring for their wholesale destruction as it is happening elsewhere the authorities have the responsibility to recognise the existence of the problem and tackle it realistically.

First and foremost elephants should be provided permanent homes where the bulk of them can live in peace, without undue interference by man.

The indiscriminate killing of these fascinating creatures is no solution. But some of the solitary bulls which are a menace must go. So far as the herds are concerned, their numbers must be thinned by capture preferably by Keddah operations where I believe, the percentage of casualties among the captives is comparatively small. Our elephants are so popular abroad, it would be no problem to find a market for them.

Our jungles would indeed be poorer for the loss of even these few. But would it not be wiser to lose a few in order to save many ?

Some Notes on CHEETAL [Axis Axis]

NARESH SINGH

Wild Life Warden, Parks and Sanctuaries, U.P.

Amongst the deer in Uttar Pradesh the Cheetal is one of the most important from the point of view of conservation because of the large number of herds that are found even today, and also due to the fact that they are prolific breeders, and supply food to the carnivores and sport and meat to the hunters. So with the decline of the Cheetal population it is feared that the balance of nature may be upset. The Cheetal is capable of adapting itself to changes in habitat, climate, and food habits and has, therefore, stood the ground and because of its adaptability it is well distributed.

The basic requirements of Cheetal should be investigated from season to season and from day to day if possible. It is not sufficient to know that it is primarily a grazer, an occasional browser and eats fallen fruits and flowers. It should be known as to what particular herbs, weeds and grasses and in what quantity, the Cheetal consumes and also which food is more useful to its health and in what quantities the different food supplies are available. The food habits when thoroughly studied will reveal much. Such a study has to be done in all zones and all seasons and after it is completed other steps may be taken to classify zones geographically and divide them into still smaller groups. One such zone should be where no shooting is allowed, while another could be the areas where shooting is allowed. The following are factors worth considering while carrying out the study:—

1. Position and class of predators.
2. Incidence of poaching.
3. Effect on food supplies by cattle grazing and lopping.
4. Possibility of epidemics spread by cattle.
5. Effect of new plantations.

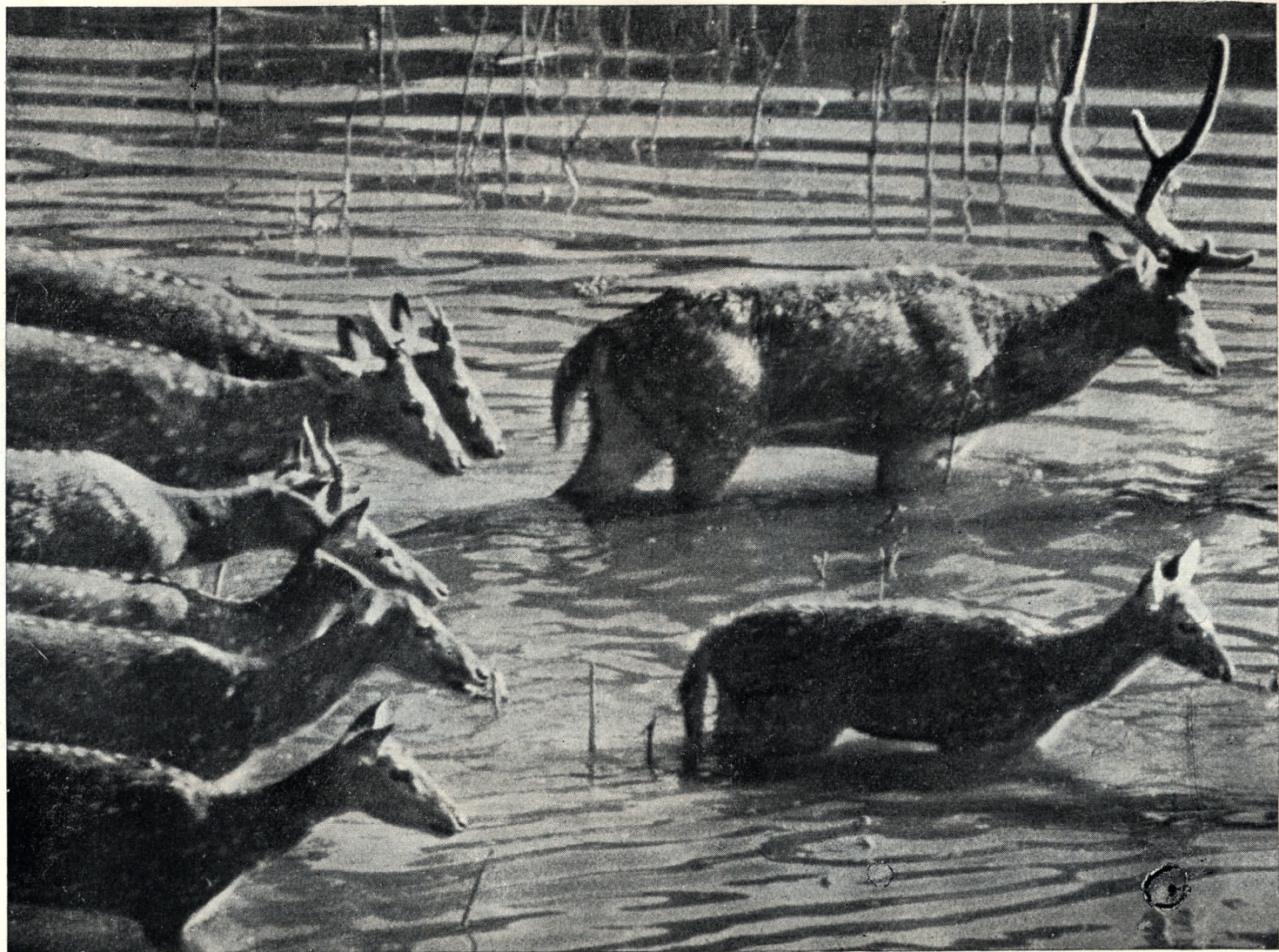
In both these areas the water supply, natural salt licks and incidence of human activity will play a marked role on the life of all fauna. On the basis of results obtained a foundation can be laid on which can be built sound management practices. Our knowledge so far is confined to writings of casual observers.

I have made notes of the study of cheetal and the chart given below gives the statistics which have been collected from different sources.*

<i>Age in years</i>	<i>Approximate speed m.p.h.</i>	<i>Gestation period</i>	<i>No. of young born</i>	<i>Fawning time</i>	<i>Average wt. in Lb.</i>	<i>Ht. at shoulder</i>
15-20	40	230	1-2	Feb.-March	190	36
<i>Mating time</i>	<i>Time of shedding antlers</i>		<i>Average length of antlers</i>		<i>Record size of antlers</i>	
June-July	October-December		28"		39.7"	

But in recent years there has been some variation in the fawning time. The variation can partly be attributed to large scale clearance of forests and other human interference. The variations are given below:—*

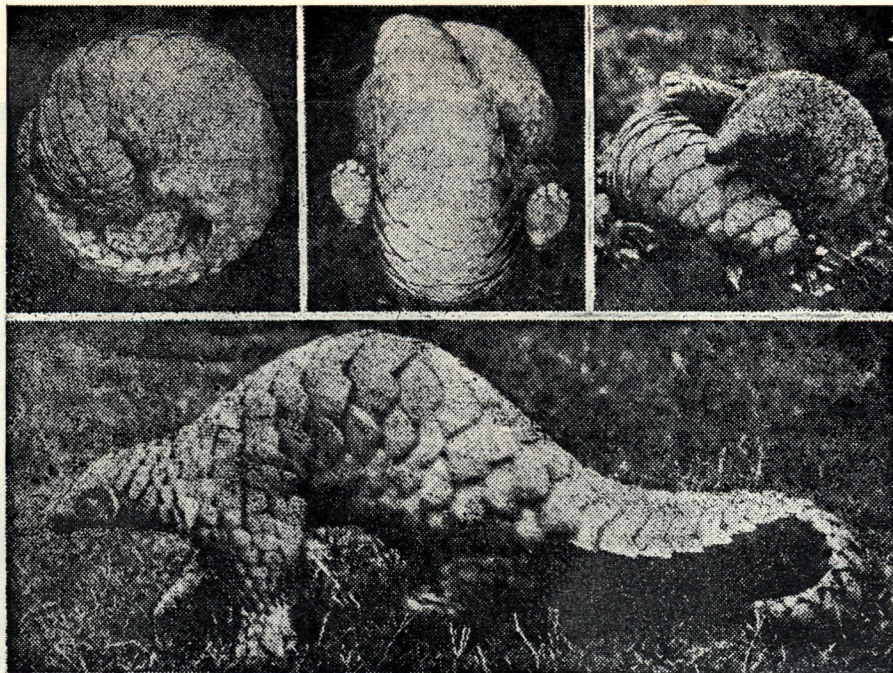
<i>Year</i>	<i>Area of observation</i>	<i>Fawning time</i>
1860-70	Kalagarh, Ramnagar, Haldwani	February and March
1875-90	Near Garappu (Nainital division)	14th February*
1890-1900	Ramnagar tarai	February to April
1905-1910	Dauli, Gangapur, Belparao	February to late March
1930-35	Jhirna, Kalagarh, Sneh	March*
1935-45	Ramnagar, Haldwani	February to mid-April



CHEETALS AT A WATERHOLE

(Note—For article see page No. 35)

Photo—Naresh Singh.



THE INDIAN PANGOLIN OR SCALY ANT-EATER

Photo—Statesman.

(*Note*—For article see page No. 39)



THE EAGLE

Photo—O. S. Osman.

(*Note*—For article see page No. 45)

<i>Year</i>	<i>Area of observation</i>	<i>Fawning time</i>
1945-50	Jaulasal, Belpani, Kicha	February to mid-April
1950-60	Nandhaur, Chorgalia, Jaulasal	March to April
1961	Corbett National Park	April
1962	Belparao, Dauli, Seljam	February to 1st week of May
1963	Corbett National Park	April to May
1964	Bijrani, Powalgarh, Sitabani	March to May
1965	Corbett National Park	January to April

(Champion, Sir John Hewett, Prater, Shakespeare, Stockley, Dr. Schaller, Dr. Bohl and observations by Author.)

The cheetal is a gregarious animal, but individuals are not confined to one herd. They often mix in other herds, and usually rejoin the parent herds. This observation was made along the 'Thandi Sarak' in Corbett National Park, and only a few typical herds were selected for this study. The observations made day to day extended to six days.

(a) $\frac{41}{48}$	(b) $\frac{41}{38}$	(c) $\frac{46}{39}$	(d) $\frac{67}{49}$	(e) $\frac{32}{51}$	(f) $\frac{79}{30}$	(g) $\frac{62}{40}$
$\frac{48}{48}$	$\frac{38}{38}$	$\frac{46}{46}$	$\frac{53}{53}$	$\frac{47}{47}$	$\frac{65}{65}$	$\frac{59}{59}$
$\frac{48}{48}$	$\frac{38}{38}$	$\frac{42}{42}$	$\frac{49}{49}$	$\frac{50}{50}$	$\frac{39-40}{39-40}$	$\frac{60}{60}$
$\frac{48}{48}$	$\frac{38}{38}$	$\frac{4}{4}$	$\frac{49}{49}$	$\frac{50}{50}$	$\frac{63}{63}$	$\frac{61}{61}$
$\frac{48}{48}$	$\frac{42}{42}$	$\frac{44}{44}$	$\frac{51}{51}$	$\frac{44}{44}$	$\frac{X}{X}$	$\frac{61}{61}$

As this study was for a very short period the actual strength of each herd could not be ascertained. But it clearly shows that the number of animals in each herd generally varies from time to time. There are always some large and some small herds in a locality. This mixing of individuals of different herds is Nature's method of safe-guarding against inbreeding.

Then there is the seasonal movement of cheetal. This movement is governed by many factors, namely, weather, availability of food, water and cover, incidence of predation and human disturbance, etc.

In another year I selected five herds in Corbett National Park for determining the sex ratio. In a place where no shooting is done the ideal sex ratio and the number of young should be 1 male, 4 females and 2 youngs, which comes to 1:4:2, but the observations are as follows:—

		<i>Male</i>	<i>Female</i>	<i>Young</i>	
herd I	...	12	28	16	
herd II	...	20	46	24	
herd III	...	76	116	30	(Probably more)
herd IV	...	36	63	11	
herd V	...	65	170	43	
Total	...	209	423	124	

The total ratio is 209:423:124, that is approximately 2:4:1 which considering the sum total ratio is alarmingly disproportionate and dangerous because there are very few young.

In the shooting blocks it is mostly stags that are hunted and the ratio of 1:6:3 or 1:8:4 should be normal. But it may be pointed out that the shooting of a few hinds and younger males should not be strictly banned. The animals with large and massive antlers are not the old ones unfit to procreate. The very old stags generally do not carry massive antlers. The best specimens for purposes of breeding must also be saved.

Prater says that the food of cheetal consists of grasses, leaves and fallen fruits. This is a very vague list of items. The researchers should find out the actual intake of different herbs, grasses, leaves, flowers and fruits and the effect of each floral species on the life and health of cheetal. The purpose of wild life management can best be served by finding out the different species of herbs, grasses, weeds, etc., and season in which we can grow them to supplement the natural food supply. This I think does not require any scientific knowledge or investigation or training.

In order to find out preference for floral species several rings should be made round in grasslands by digging soil, and by noting down the names of the different species of weeds and grasses. These ringed areas will then be watched to find out which of the grasses and weeds the cheetal have preferred. If this is done in several areas and the effect on health is observed, then it can be known which weed and grass is best suited for the healthy growth of the cheetal.

In the forests there are several trees which provide to the herbivora fruits and flowers almost year round. Such trees should be planted in places suitable to them, to provide more food to the animals.

I must say that the cheetal is holding the ground single handed, and on its own against encroachment predation, hunting and poaching. The figures of cheetal killed by sportsmen in the year 1963-64 is 242 but no figures are available of the number of cheetal killed by poachers in Government Forests, by farmers in their fields and by others, which have not been recorded. The total number of cheetal killed every year by sportsmen, officers, poachers, farmers and predators may run into thousands. And cheetal are the only animal allowed to sportsmen for the 'pot' during the closed period.

The Indian Pangolin or Scaly Ant-Eater

(*MANIS CRASSICAUDATA*. GEOFFR. St. HILAIRE)

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The Indian Pangolin or scaly Ant-eater (*Manis crassicaudata*) with small external ears, a cone-shaped body and without teeth in its mouth is among the most curious living mammals of the world—often called the old world Edentates. On the outside its body looks like a large fir-cone, and even similar in colour. It belongs to the family Manidae and genus *Manis* in the order of Placentalia Pholidota. Pangolin from the Malayan meaning 'roller', refers to the defensive habit that this animal has of curling into a ball when danger threatens. It resembles the Armadillo in having an armoured-coat. The coat consists of overlapping scales in the reptilian fashion. The scales are strong enough to resist even a revolver bullet. The Pangolin is generally a silent animal. When excited it hisses loudly.

The phylogeny of Pangolins is not known clearly. The oldest bones, representing living forms, have been found in the Pleistocene of Southern India. They are, therefore, of an age of only some hundred thousand years. Evidently the ancestry of scaly Ant-eaters became separated during the Paleocene, that means 70-60 millions of years ago, from some early primitive stock of Placentalia (mammals with a placenta) and have evolved quite independently.

There are two species of Pangolins in India. The Indian Pangolin (*Manis crassicaudata*) dwells in the deciduous forests and scrub jungles in plains, hills, and mountains and semi-deserts of India, South of the Himalayas, Mysore and Ceylon. The Chinese Pangolin (*Manis aurita*) occurs westwards in Assam and the Eastern Himalayas to Nepal, Hainan, Formosa, Java, Sumatra, Borneo and Phillipines.

The African *Manis gigantea* which has a length of 6 feet occurs in Sudan southward to the Cape in Africa. The other species are *Manis javanica*, *M. Tricuspis* and *M. Temmincki*. *Manis longicaudata* has a prehensile tail. The latest review of the family shows that it has seven species.

The head and body size of the Indian Pangolin is between that of a badger, 2 ft.—2½ ft. The tail is 18 inches long. The body is stream lined and tapered at both ends. The small, pointed head has a narrow mouth, a fine muzzle and little squares between the nostrils, tiny eyes, and rudimentary ear-couches. The head integrates smoothly into a short neck which

also joins in the same manner into the roundish body. Legs are short, each with five toes with sharp claws. Claws on the forefeet are longer than that on the hind, beyond which the 2nd, 3rd and 4th are very long. While walking on the ground the front toes are bent under the soles of the forefeet. The whole sole of the hind feet is, however, applied to the ground. Tail is long with a surface roundish above and flat below and a broad root. The tail tapers gradually.

The undersurface of the tail tip is naked in the case of *M. javanica* and *M. tricuspis* and this may act as an organ of touch for the climbing species. The undersurface of the body of the Indian Pangolin and the interior of its legs are covered sparsely with coarse brownish and whitish hairs. These hairs grow relatively late. One to four hairs also grow behind each scale but are soon shed or rubbed off. The upper parts of the body from head to tip of tail, down to toes including the undersurface of the tail are covered with dark brown or yellowish brown scales. The scales are tile shaped, arranged in regular overlapping series. They are modified hairs, enlarged and flattened and densely cemented together and built up by the epidermis. They are quite strong, hard and sharp at the edge, and firmly rooted in the skin. They cannot be pulled out but may be spread at will.

Each species of Pangolin has a fixed number of scales within narrow limits. The Indian Pangolin (*Manis crassicaudata*) and *M. temmincki* have 11-13 scales in each series or cross rows, round the body. The Chinese Pangolin (*M. aurita*) has 15-18 scales. *Manis tricuspis* bears 19-23 scales.

Pangolin's skin bears no glands except of a ring of Perianal and circumanal ones around the anus. Even eye-lids lack glands, a feature unique among mammals. The anal glands give out a nauseous smelling secretion, rather like the skunk's. A wide band of skin muscles on both the sides of the backbone enables the Pangolin to roll itself into a ball, tucking its head and legs under its stomach and spreading its scaly tail over itself. This sort of rolling is meant for sleeping or defence, exhibiting extraordinary strength in holding its body tight in this protective attitude. No ordinary trial can make it to unroll its body. When rolled the animal is protected by the scales. It has a wonderful adhesive tongue which is quite long, roundish and more flattened in shape at the tip. The tongue can be stretched out at a great distance with the aid of the complicated hyoid apparatus and it is coated with viscid saliva. It licks up ants and termites so dextrously and quickly that human eye is unable to follow. Therefore the salivary glands are remarkably well developed. The insects licked up are swallowed at once and not chewed, because there are no teeth at all, not even a trace of them.

The Pangolin's stomach is a simple sack. Its inner wall is lined with a thorny epidermis. The lower region of the stomach bears pyloric horn teeth to grind the swallowed ants or

termites. This pyloric region acts like a bird's 'gizzard' containing a quantity of sand and small pebbles. The intestine is a simple tube, its gut showing no difference between colon and rectum, and there is not even a coecum. The liver is deeply lobed and has a gall-bladder. The uterus has two horns, the urethra entering the middle of the vagina so that the underpart of the latter exhibits a true urinogenital tube. Anus and vulva are placed together in an invagination forming a false cloaca. The testes are posed beneath the skin. Scrotum is absent.

The skull is simple and wedge shaped. It has no teeth, only incomplete zygomatic arches and a little jaw as a slim clasp. The flat orbit and the temporal groove are not separated each from the other. The tympanic bone is flat and ring like. The nasal cavity is large and with well-developed conchae. Clavicles are absent. The sternum supports the muscles of the tongue sack, which ends behind in the form of a spade in the Asiatic species, and as a long double stick in the African species. The vertebral column has 7 cervicals, 14-17 thoracics, 5-6 lumbar, 3-5 sacral and 26-49 caudals. The end phalanges of the fingers are fissured to give stability to the roots of the claws while digging. Brain is simple and has two large olfactory lobes. That means the intellect of the Pangolin is not very important, but the animals have good sense of smell.

Pangolin is a nocturnal animal. During day time it sleeps curled up in a burrow dug by itself or it shelters in rock clefts. It sleeps with its head between the forelegs and its tail fairly folded over all. The Pangolin digs its burrow with its forelimbs having longer claws. It uses each forefoot alternatively for excavating the earth. The accumulated earth is shot backwards between the hind limbs, and spread out by vigorous kick. A burrow is about 8 ft. long and some 4 ft. below ground with a chamber of 2 ft. in diameter at the end. After getting inside the burrow the Pangolin closes the entrance so as to make it difficult to locate. But the Peculiar Pug marks it leaves locate the burrow.

At night the Pangolin comes out of its burrow in search of food and walks about slowly with its back well arched and tail held off the ground. It can travel when necessary at fair speed, displaying great agility. It often raises itself on its haunches, to have a look around, and owing to the balance of its tail, runs on its hind feet. The Indian Pangolin can also swim and climb on trees or on rocks to stir up the tree to secure tree ants. It climbs a tree somewhat like a bear and grips a branch firmly with its forelimbs and claws and often with a curl of the prehensile tail like a Bear-cat. When it has thus gripped the bough it is difficult to dislodge it. The African species are partly arboreal and will often rest with their long tail and body wrapped completely around a branch and also sleep in tree holes.

Pangolin feeds on eggs, young and adults of ants and termites—whose existence has promoted the evolution of Pangolin. While breaking a conical, termite mound with its powerful claws of its forelimbs the Pangolin sniffs from place to place and locates the exact spot of the comb-like fungus 'garden' bearing swarms of termites or white ants, thrusts its long narrow head into it and licks off the termites quickly and swallows them. Then it goes searching other combs. Pangolin does not seem to relish termites living under logs and stones and small red ants often found in gardens. It eats only black ants and the big red tree ants that build leaf-nests. It is very fond of ants' eggs. The large red ants will bite the Pangolin on the abdomen and face so that it must pause to scratch them off. It drinks where water is available freely and in the semi-desert areas it often goes without water. It drinks water by lapping with a quick darting in and out of its extensile tongue. In captivity the Pangolin consumes milk, sago, raw eggs, etc.

Little is known about Pangolins' breeding habits. An adult female gives birth to a young one at a time, between January and March in the Deccan. Birth of a young is recorded even in July. At birth the young has eyes wide open. It is fully developed with soft and flexible scales, growing hard the second day after birth. The young grows rapidly. The mother carries the baby on her tail. The baby sits with a firm grip across the tail, which is held above the ground. When alarmed, the mother curls up safely holding the baby under the ventral part of her body shrouded by the tail. Little is known if the male joins in rearing the young. The parents with the young live in the same burrow.

Pangolins live up to an age of 11 to 12 years.

Tiger and leopard relish Pangolin's flesh and so also some hill tribes. The tiger attacks a Pangolin despite its ability to roll up into an 'impregnable' ball and tears it open. The Chinese gather Pangolin scales, in the neighbourhood of Tigers' lairs. These scales are considered to have aphrodisiacal values.

It will be quite interesting if the wild life staff takes up the study of the breeding habits of Pangolins.

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Conservation and Management of Sport-fish in the U.S.A.

R. D. SINGH

Sport-fishing is almost the national outdoor sport of America, and its devotees increase in numbers each year. The reason? Bigger incomes, more leisure, improved roads, fascinating arrays of tackle and equipment, and INCREASING NUMBERS OF PLACES TO FISH. Then, too, it is a sport in which the whole family can participate.

A National Survey of sport-fishing in a typical recent year, revealed some interesting facts. It showed that 50 million Americans fished at least once that year; that 25 million of them 12 years or older, fished regularly. Collectively, the more ardent American sportsmen fished nearly 466 million man-days that year, and caught..... (well it does not matter really).

But the important fact is that the survey showed that in 36 of every 100 American homes there is at least one angler; that one of every four American men fishes and that one of every 10 women fishes.

The United States population is expected to nearly double by the year 2000, while anglers will increase about $2\frac{1}{2}$ times. This means that by the end of the century about 63 million anglers will be looking for a place to drop a hook-and-line. The Fish and Wild Life Service, U.S. Department of Interior has been designated official agency to see that fishing opportunities are made available to satisfy the anticipated need.

Managing Sport Fisheries

Sport fishery management has as its main objective the maintenance of fish populations at a level that will provide the angler with a good catch of fair-sized fish, year after year.

Modern fishery management is about 30 years old in America. But Americans have long been interested in their fish resources, and attempts to regulate fishing go back to Colonial Times. In 1678, in Virginia attracting fish with lights (known as jacklighting) was outlawed. After the Civil War, more active concern was shown by many people for their declining natural resources, and Sportsmen's clubs were organized. States began to create fish and game commissions, adopt fish codes, and hire wardens to enforce fish laws. In 1871, Congress authorized fishery research and appointed a Commissioner of Fish and Fisheries to study the Nation's depleted fisheries and to suggest remedies.

By the turn of the century, fishery biologists began intensive study of the waters in which the fish lived. The more they learnt about the ocean, the inland waters, the edges of

the sea, and lakes and rivers, the more they came to appreciate the close relation between fish and their environment.

Modern fishery management depends on three basic measures: regulating the fishing take and enforcing fishing laws; stocking, and restoring or developing favourable fish habitat. The question of who owns the fish in the lake, river, pond or estuary, and who is responsible for their well being often arises. Traditionally and legally, the State has primary responsibility for regulating and managing fisheries within its borders. State laws may delegate some of these responsibilities to the private landowner or to the Federal Government on federally owned lands. In some states, fishing waters underlaid by private lands belong to the land-owner. But 27 States do not recognize private ownership of stream-beds. All the States have conservation departments that enforce the laws, engage in research and carry on management.

Congress has recognised that Federal Government also has certain responsibilities for conserving the Nation's resources. As said earlier, it has The Fish and Wild Life Service, U.S. Department of Interior, as its official agency. Responsibilities of the Federal Government in resource conservation has been reflected in numerous laws enacted by congress through the years. These measures have been a boon to sport fisherman.

A big step came in 1934 with the passage of the original "Coordination Act". This law, as later amended, requires that fish and wild life conservation be equally considered with other purposes of water resource development, such as irrigation and flood control. When a Federal agency intends to impound water or in any way change existing water conditions, its plans must be reviewed by the Fish and Wild Life Service. In this way, potential damage to fish and wild life in the area can be anticipated and the plans modified.

Two Federal laws, to provide finance for research programmes and the supply of trained personnel have been extremely helpful. The Dingell-Johnson Act and the Cooperative Unit Act of 1960, respectively have served the purpose of fishery research and the training of research and management biologists.

From the reports of the Fish and Wild Life Service about sport fish management it is obvious that they are looking ahead to improve both management and provide better fishing. They are impounding waters, clearing streams of industrial waste and controlling the growth of weed besides making access to fishing places easy. Coastal and marine fishing is also getting more attention. By these methods they hope to keep-up with the growing need for the increasing numbers of anglers.

Our own efforts in India, in comparison, look woefully inadequate. When the State Government has not been able even to maintain adequate facilities on the fishing streams

in U.P. it is much too much to expect it to provide facilities for research, re-stocking and other management problems. No strong deterrents have been imposed on 'bombing' of fish and catching them by other illegal methods as 'night-lines'. Conditions have deteriorated to such an extent that some streams and spots that provided excellent fishing have been completely ruined. It has been earlier pointed out that, as a beginning, ours is only a problem of protection to fish under a strong service and the remarkable powers of the fish to renew their numbers would do the rest. With favourable conditions a large part of Nature's production can be taken (fished) without harming the brood-stock.

No country in the world can offer such an excellent sporting fish as the Mahseer. The number of sub-himalayan streams (most of them in U.P.) have vast potential only if it was properly tapped.

The value of Florida's recreational salt-water fishing to the State's economy has been estimated nearly equal to the combined value of the State's citrus and cattle industries. Why fishing would not be a major money earner here, if well managed, is difficult to understand.

The primary need, then, is to organise a Fish and Wild Life Service within the Forest Service, and that would only be a beginning.

Falconry—III

THE EAGLES

S.M. OSMAN

Eagles have always stirred men to wonder and irresistible imagination. They appear in a thousand different places, ranging from the mist covered shores of Alaska and Greenland to the palm studded islands of the tropic seas.

A long path of evolution lies between the eagle's earliest recorded ancestor and the sleek powerful raptor of today. The most ancient forerunner of the tribe was probably the "ARCHAEOPTERYX", and as it rose from the primordial sea this creature was in all probability a half-reptile, half-bird creation.

Eagles have played a very important part in the growth of many legends as well as religious beliefs. It would be possible to multiply such tales and allegories indefinitely. For

instance there is a story which tells us about the age of the eagle. We are made to understand that the eagle in fact never dies but keeps on soaring till it mounts the very stars. There, half way to heaven, it remains suspended, welcoming the light of all the other constellations. Protected by the solitude of space, a point where no beast or other bird, or man may hope to win a trespass way, and surrounded by eagles alone, these feathery overlords of the predatory kingdom do not die but wait for the dawn of that wonderful day when they must stoop down and reconquer a world full of naughty men. A fitting legend indeed for the king of birds. It is the story of Arthur on Avillon; of Barbarosa; of Kaikhusro, the hero of Persia; it is the story of the brave and the mighty who do not stoop before the tyranny of death.

Eagles are found among the ancient as well as the most modern cultures and religious significance is generally attached to them. The Red Indians of North America personified thunder as a monstrous eagle. This mythological bird which, they believe, creates thunder and lightning, is the only survivor of a group of four. The other three have perished by drowning since another God of the Indians, lured them one after another to watery graves at the bottom of the sea. The last bird, we are told, has flown away and remains to this day soaring at a colossal height, in the realm of wind and cloud. In Central America this bird is called HURAKAN (the tempest god of lightning and thunder). In English, Hurakan got corrupted, and the word hurricane is no doubt a derivative from the original Indian form. In any case the Indians argue that without this thunder bird there would be no rain and the world would soon wither and die away.

Eagle's feathers have been used for the decoration of shields, emblems, banners and cloaks. Aztec nobles dedicated to war wore eagle feathers. Golden eagle feathers were used for decorating a chief's bonnet, and this would bear testimony to his prowess as a warrior; in addition it would serve as a hallmark of rank.

In Brahmin tradition the God of the sky described in the Mahabharata as "the bird of life destroyer of all.....etc." is a mythical eagle called "Garudas". Garudas has since acquired a human body with all eagle like attributes and may very often be seen, carved in stone, on Buddhist temple walls. The ancient Sumerians believed that Ningursu, one of their gods, had taken the eagle as his perpetual companion.

A Persian hero Rustum had his father Zal, borne away by a large eagle, the Seamurgh. The origin of the story may be traced in Firdausi's Shahnama. Zal in Persian means albino, and when Sam, a prehistoric king of Persia fathered a son with white hair, he abandoned him (Zal) on a hill which also harboured a Seamurgh's nest. This mighty eagle carried Zal to her nest where she raised him. After sometime Sam dreams that his son is alive and goes in search of him. He is overjoyed to find the seamurgh, bearing the boy in her talons, appear

before him. Zal, we are told, was much aggrieved in parting with his foster parent the Seamurgh, and in consequence wept bitterly. At this, the Seamurgh is said to have presented the prince with a feather from her breast saying, "in time of need cast this feather into the fire and I will come to your help". Many years later, when Zal's wife lay dying from birth-pangs he summoned the Seamurgh by burning the magic feather. And so it followed that a caesarean operation conducted by the Seamurgh was directly responsible for the birth of the famous Persian hero, Rustam.

For Christians, the eagle bears special significance, for in the Old Testament if we look into the Revelation, we will find that, "The eagle of God protects his throne". The eagle, according to Biblical accounts, symbolizes the strength and protection of the Lord who in these terms offered covenant to Moses on mount Sinai, "Ye have seen what I have done to the Egyptians, and how I bare you on eagle's wings and brought you unto myself". It is further emphasized in the Bible, in the song of Moses, "As an eagle stirreth up her nest, fluttereth over her young..... etc. so the Lord alone did lead him (Jacob) and there was no strange god with him".

Julius Caesar had the figure of a double-headed eagle carved on his shield. Charlemagne, the Czar of Russia, and the Austrian Emperors had for their emblems the eagle. On Teutonic shields is borne the symbol of the two-headed eagle. Eagles have appeared on tapestries and heraldic bearings. On June 20th, 1782, the United States of America, selected for its national emblem a design displaying the bald headed eagle. Coins dating back to 4 B.C. show Alexander the Great with a hawk eagle on his fist. So eagles have appeared on coins, on potteries, and banners. They have also appeared in the writings of great mystics and poets as well. Byron in his poem "on the death of Kirke White" penned the following lines to the eagle:

"So the struck eagle, stretched upon the plain
No more through rolling clouds to soar again,

Viewed his own feather on the fatal dart,
And winged the shaft that quivered in his heart;

Keen were his pangs, but keener far to feel,
He nursed the pinion that impelled the steel,

While the same plumage that had warmed his nest,
drank the last life drop of his bleeding brest."

Again Alfred Lord Tennyson, poet laureate of England in his masterpiece "The Eagle" writes:

"He clasps the crags with hooked hands,
Close to the sun in lonely lands;

The wrinkled sea beneath him crawls;
Ring'd with the azure world he stands;

He watches from the mountain walls,
and like a thunder bolt he falls".

The "glorious fowl" of Horace Walpole is in fact, no other than a fish eagle. Napoleon revived the eagle in military and civil decore. Saddi one of the finest and best known Persian poets, who really belongs to the group of mystical poets, has written metaphysical lyrics about the eagle.

Today as never before, we come across the sign of the eagle. We find eagles staring at us from beer bottles, he is displayed on motorcar tyres, and painted with varying degrees of skill and immaginatice on innumerable signboards. Those who lack personal acquaintance with the king of birds are apt to take their notions from photographs, paintings and prints in which the eagle may be seen flying over hill and dale, or plunging to earth with folded wings. It will be agreed that to establish contact with His Majesty is possible only if one is impervious to the discomforts of tramping many long miles in wild and rough country. An introduction to eagles, that have been trained for falconry, is accessible to yet a lesser few who are prepared to cast their lot within the pale of ardent and dyed-on-the-wool falconers. For all such should be ready to go off the beaten track and to face with stoical fortitude the difficult conditions that make eagles such extraordinary birds. It is mainly because of the great skill required for the training of eagles, and the patience absolutely necessary in such a pursuit that, the hunting of game with an eagle must be placed foremost amongst sport of all kind.

Whenever I think of the eagle, I get a whiff of the past, the vision of the great age of falconry; a dazzling fragment of a glorious sport wafted over the chasm of time and space. A lot has been written about eagles, and the many shades of expert opinions, formed from long study of the bird, seem to suggest that the habits of the regal bird differ. I am sure that the eagle has been more written about than any other predatory bird. I have always found eagles that are employed in the field of falconry bear themselves with bravery, ferocity, and unmatched courage. When I first thought of writing about eagles I was not at a loss how to begin? All I had to do was simply to close my eyes and I would once again find myself in the land of the eagles; the country I have so often seen, a land with many different moods and aspects. The glorious land that stretches from the river Ganga to the banks of the Jumna. I have

also watched eagles in Baluchistan and Afghanistan. The Doon valley has been, however, my main experimental ground. Here, at great and short intervals, many small rivers pour their swift currents down to feed the holy waters of the two sacred rivers. Swamps and dense jungles of the terai; in the jungles there were tigers, at one time quite plentiful; in the low forest bordering the heavy jungle myriads of wild fowl and deer of many species. To the north, thrusting uncouth shoulders, rise the Himalayas, snowcapped in winter and lush green in the summer months. In the centre lie patches of cultivation that bear the scar of man's battle with the soil. In some places a broken wall or a crumbling hut shows one how the rivers in their monsoonic fits of destruction and fury have carried ruin in their path. In these forests I have walked hundreds of miles. I have done so mainly to observe the different kinds of eagles that are to be found in this locality.

I have spent many a day in some beautiful jungle glade peering over the top of huge trees, in the hope of being rewarded by a glimpse of the king of birds. Wonderous days, as I lay watching, peacefully quiet, beneath the cobalt dome of heaven, always watching the misty velvet of infinity. A stream nearby gurgles with pleasure, catches the beauty of the sunbeams and reflects a radiant answer. On such days, with the fitful music of the stream and the rustling of leaves, the jungle sleeps hushed. All of a sudden, and a little muted by great height comes the piercing, strident, ringing call of the eagle as he soars above the canopy of the forest. And this imperious demand of the king of birds shatters the spell of peacefulness and throbs in the very heart of silence.

Immediately follows an unholy chorus of babblers as they vociferate and complain. This congregation of the feathery urchins has always made me rejoice by their music as they mock the eagle with blasphemous and irreverent voice. As for the eagle it rarely betrays itself, but other denizens of the forest do not love him dearly, and always make it a point to give him away. Birds such as babblers, crows, and drongoes, scold him as he leaves his perch and will follow him as he moves. Monkeys will chatter torrents of filthy abuse and start scolding as the eagle glides noiselessly amongst the trees. I have watched Ghoral (mountain-goat) bleat in alarm and rush for cover as an eagle swoops over their heads. Crows will, as do all other birds, scold the eagle vehemently and I am sure they have good reason to fear.

With writing paper before me I am encouraged to enter into its pages such experience as has been my good fortune to gain and to have it in my power to express. Eagle watching is perhaps the best time for observing other large and small game as well. To me it is a period of recreation, and in a most agreeable fashion too. As I seek rest from labours of one kind while undergoing fatigue of a different sort relief is felt when I find the sedentary life led in the city fade away in the labours of the field. Refreshed I wake up each dawn after a night

of wonderful repose, and am expectant of the new experience the day will unfold to me. Evenings are most pleasant when you sit by the fire outside your tent and conclude the pleasures of the outing by going over the incidents of the day. Undoubtedly there is bound to occur at intervals, huge gulfs of time when the eagles simply do not show themselves, and he is bound to be a sorry man who in the meanwhile is unable to interest himself in some other bird, beasts or reptiles. Such days would be dull business indeed for the watcher of the eagles who finds nothing better to occupy himself in his spare time.

It is a rare occurrence for a naturalist to be graced with the spectacle of an eagle on a kill, or of the events that generally lead to it. The eagle comes not to any bird table to feed, and those interested in watching him enjoying a repast may hope to do so only if they are prepared to expose themselves to all the inclemencies of the weather as well as unceasing watch and patience.

Rarely is man so close to nature "red in beak and claw" as when he is confronted by an eagle on a kill. For there lies the natural food of the eagle; it may be a hare, a pheasant, or any other game; something that has met its end in violent death. And crouching over it with raised hackles and open beak, flashing yellow eyes, a perfect picture of muscle and strength and ferocity is the eagle. It is moments such as these that remain deeply engrained in the mind of the naturalist. However memory of the most lucid picture will often begin to fade after sometime and imagination will take its place. I have, therefore, made it a point not only to keep my imagination in leash, but also to record my observations while they still remain undistorted by the misdeed of time.

Naturalists who are not satisfied with the observations of lesser individuals always attempt to show how necessary it is to be able to count the exact number of mouthfuls of food taken by any bird or beast during a single meal. One such worthy even recorded the number of times a wild gorilla would harken to the call of nature in a single day. Such persons are very naturally deemed specialists and their sporting attempts to capture similar delightful details have in fact won them a place in the citadel of zoological orthodoxy. I not being that competent, and not having the patience or the least inclination for this kind of ponderous work, am obliged to put before my readers a dispassionate survey of the royal bird, and this I hope will be viewed in the proper light of a simple story of facts, told in a simple manner, by a simple man.

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[This is a chapter out of the book on Falconry by the author who has ample experience to qualify him to write on the subject. The book is under publication and is bound to add original matter to the existing literature on the subject. We wish the author all success.—Editor,]

Conservation News About India

(All or part of this can be used in any publication dealing with wild life conservation.)

The first phase of a series of wild life surveys and censuses in India has recently been completed, and a total of nine sanctuaries in four States of northern India have been visited. The person doing these surveys is J. Juan Spillett, who has been conducting ecological research in India for his doctorate in animal ecology for the Johns Hopkins University, Baltimore, Maryland (U.S.A.) since October, 1964.

The work, which was made possible by a grant from The Foundation Volkart Brothers of Switzerland through the World Wildlife Fund, and by the sustaining research grant from the Johns Hopkins University of U.S.A., was officially designated as "World Wildlife Fund Project No. 173: The Wild Life of India", and was welcomed by the Government of India and by the Governments of the States concerned all of whom gave their full co-operation. The initiation of the project, overall arrangements and supervision were done by the writer of this note.

In these surveys was included an Ecological Survey of the Great Indian One-horned Rhinoceros, and for this reason the Chitawan area of Nepal came to be included, with the full co-operation of that country. In fact this survey of the Indian rhino had previously been "World Wildlife Fund Project No. 47", but funds for it had never been obtained; therefore the new project was conducted in such a way as to include the long delayed ecological survey of the Indian rhino in northeast India and Nepal.

From January 21 to June 25, 1966 the dedicated and hardworking J. Juan Spillett travelled a total of over 13,500 miles by plane, train, bus, car, jeep, pony cart, bicycle and boat; and over 300 miles were done on foot. In addition over 21 days, or approximately 160 hours, were spent on elephant back. On most of the longer journeys he was accompanied by his wife and child: the former is an expert typist and due to this fact there is the unique result that by June 25 the complete Report totalling 51,000 words, 21 photographs, 8 maps and numerous tables were all ready for publication.

In several of the sanctuaries which were visited, a wild life census was conducted sometimes with the assistance of a colleague or two and sometimes with officers and staff of the Forest Department concerned. With regard to the Indian rhino population, the position is more gratifying than previously anticipated. My own estimate of the world population (in northeast India and Nepal) of Indian rhino was formerly 625. But a census done in Kaziranga

in Assam during March, 1966 produced an actual count of 366 and an estimated 400 in that one place alone. In Jaldapara Sanctuary of West Bengal there are now believed to be 50 against the old estimate of 60. No actual census could be done in Nepal, and estimates in that country vary between 100 (by Spillett, after a brief visit) and 165 (by R.G.N. Willan, the Chief Conservator of Forests of Nepal). Having done some lengthy studies in that country myself and knowing how well the rhino there are able to hide themselves, I am personally of the opinion that the latter estimate of 165 is a more correct one.

This brings the total estimated number of Indian rhino now in existence to 740, against my earlier estimate of 625. Details of my present estimate, after Spillett's work on the subject, are as follows:—

Chitawan, Nepal	165
Jaldapara, West Bengal	50
Gorumara, „	5
Kaziranga, Assam	400
Laokhowa, „	40
Kukurata, „	7
Raja Mayang, „	6
Orang, „	12
Sonarupa, „	5
Manas, „	15
Elsewhere in „	35
Total	740

In addition to the above-mentioned rhino areas, the following wild life places of India were surveyed and in most cases censused: Corbett National Park in Uttar Pradesh, where the impounded water of the new lake will inundate some 18 square miles of the park, affecting the wild life population including the chital; and Sikandra, near Agra in Uttar Pradesh, where a valuable herd of the fast-disappearing blackbuck exists; and the Keoladeo Ghana water bird sanctuary where also exist a number of important large mammals, Sariska, Van Bihar and Ram Sagar Wild Life Sanctuaries—all in Rajasthan.

One of the most important findings of J. Juan Spillett's surveys is that in general it is not only poaching that is the great threat to the continuance of India's wild life and wild places but the indirect and gradual effects of over-grazing by domestic livestock and trespass by local villagers for firewood, fodder and so on. This is, of course, a worldwide problem, but it is probably a more acute one in India and only confirms what other conservationists, including

myself, have been saying for some time. But here at last it is clearly and convincingly shown by an independent person who is also a trained ecologist, with facts and figures (and photographs) to support.

About one half of the grant so generously made available by The Foundation Volkart Brothers has already been utilized. It is possible that the Johns Hopkins University may be able to release and enable Juan Spillett to continue his work and cover the southern and perhaps the western regions of India during the coming winter, in which event good use can be made of the remaining portion of the grant from Switzerland, by someone who has already gained considerable experience of local conditions and problems in this country.

E.P. Gee.

[Mr. J. Juan Spillett is an active member of Wild Life Preservation Society of India and has been regularly contributing articles concerning his research to the CHEETAL. We wish him all success.—Editor.]

Tigers and Toxins

G.H. SCOTT

We have so often heard from old shikaris, and read in their accounts, of tigers going off into a deep sleep after a heavy meal. This is often the case with many persons whom I know. They cover their retreat from after-meal company with the excuse that the "python feeling" has got the better of them. This human trait is understandable because they have no natural enemies who could conveniently take advantage of them. Perhaps the same could be applied to the tiger, for which other creature in the jungle would venture to take its revenge on the striped adversary? There is something more to this.

It is not contentment alone that induces deep slumber. The tiger is instinctively wary. Does he, after a hearty meal, cast his natural instinctive wariness to the winds? What then is it that overcomes his sense of caution? Could it be the exhaustion that has come about due to prolonged starvation? Exhaustion caused by endless pursuit in search of food can be considered, but then, a tiger does not roam around continuously until he finds, kills and devours his prey. When times get hard, he even then moves with a purpose and stealthily, resting while he observes and listens. Tigers cover vast distances while in search of their food, but when we calculate the total mileage he covers on an average each day, and compare the figure to the distance covered in movement by an average working man, the tiger as a

species of animal life, can be termed as lazy. But here again we must consider the fact that every animal has the instinct to be wary when he is most vulnerable. For instance, the deer family when drinking. The tiger as mentioned before, can afford to be off guard in the jungle, but nature did endow every animal with the sense of self preservation. There is instance of this brazen indifference on the part of the tiger towards his enemies, only after he has fed well. The food that he eats must be the cause. Here is a theory which might draw criticism from those who know better, on the other hand, there have been some whom I thought ought to know, and they have registered the greatest surprise to think that they had never thought of such a fact.

Flesh, when it decomposes, releases a number of toxins. These toxins are very potent when consumed. They have the toxic effect which causes drowsiness which is similar to drunkenness. Here then is a theory which one might explore to determine the cause of the unaccountable deep sleep which helps trackers and stalkers to creep up on a sleeping tiger.

Take the case of vultures after feeding on carrion. Did nature design these birds to become so helpless after feeding that they require a fair length of runway to take-off!! They are ungainly, and like most birds of their size, they do require a run before becoming airborne. But how often one sees vultures at a carcass run laboriously away when driven, and incapable of flying. Is it natural for a pursued bird to run away when it is capable of flying out of danger?

One old shikari in M.P. related his experiences which appear to be the test of the theory of toxic effect on a tiger. After many years of life in the jungle and many tigers to his credit, he now finds pleasure in stalking for the fun it gives. He came upon one of his tiger acquaintances sleeping near his kill. He approached within 30 yards of the sleeping animal bent down to pick up a stone and as noiseless as he was, the tiger with a low growl was off. He had killed a full sized sambhur and had fed on a fair portion of the rump. The kill was only hours old. The next day in the mid-afternoon, the performance was repeated. This time he maintained the discreet distance of 30 yards, and threw a stone at the sleeping beast. He awoke, looked around without really seeing the old sweat who cleared his throat, and the tiger was gone. Two days later, bones and fragments of meat remained.....this time, two stones were pitched and a twig snapped by the old sweat's companion. This seems enough to prove the theory that decomposed meat caused drowsiness which overcame the animal which had eaten the flesh.

Has this then exploded the age-old theory?

[Members are invited to send their opinion on the above theory.—Editor.]

The Hanka Wallah

By "FULL CHOKE"

The sun was down, the hour was late,
A wizened frame he came,
With tattered coat and tottering gait,
His age had made him lame.

'Good-evening Sahib—Mai aya hun'
To give you news galore
I've seen the marks in the morning dew
Of stag and great wild boar.

You go to Hell! I will not come
You lie! and cannot see
You're far too old I tell you chum
To join the chase with me.

Who says I'm old? See I can run,
And the spoor I read it well
The signs were clear in the rising sun
They lead through Makhi's dell.

Be gone with you! I'll have no more!!
You know no "Dooker's" lair
I've been before to Ballapore,
And haven't seen a hare.

Oh noble huntsman bring your gun
This time I shoot no line
For I have seen in the rising sun
The marks of mighty swine.

It's not big game—you son of sin!
That brings you here to me
But cash to spend in Gowda's inn
So you might have a spree.

Oh go on Sahib! you know full well
That hunger haunts my days;
I fall no more in Gowda's spell
Nor practise boyhood ways.

Alright you son of shame, what day
Must I drive to Ballapore?
To take the trial and find and slay
This king of all wild boar.

Two full days time: give me my lord,
To make my bandobast
Then take the road to the forest lodge
And thence to Makhi's hut.

Oh welcome Sahib! the news is good
The wild boar's in his prime
With tushes curled and vicious mood;
May luck be good this time.

Tomorrow in the dawning light
The beaters will arrive,
To drive the pig, into your sights
While I'll stand by your side.

And now Sahibji I feel I must
Touch the greatness of your heart,
My cough is bad—my throat like dust,
One small one?—for the start.

All's well Huzoor—now take your rest
While I to the village go
But I'll return when the moon has set
And the early cockerels crow.

Wake up good Sir! make haste! be fast!
We must be on our way
It's getting late—the beat must start
At the very break of day.

The morning breeze in gentle puffs
Danced through the sky and woods.
A coolie hunched to take my stuff,
I shivered as I stood.

The sun was late—the moon had set
The morning star rode high
This jewel in black velvet yet—
Was Sultan in the sky.

Whack! Listen Sahib! the kakkars call
The wind is in his face
He stands out there on yonder knoll
To trace the path we take.

The day turned bright the Sun was high,
When heralds without horns
Their cock-a-doodle-do's did cry
In salute to the morn.

Beside the stream the track turned right
The brook was crystal clear
And to it's banks all through the right
Came pig and spotted deer.

Now sit you here—behind this bush
And scan this 'fire-line'
For here he'll break with grunt and rush
That lord of mighty swine.

Not L.G. Sahib! use lethal ball
You know he is very big
For with one shot he's got to fall
That mountain of a pig.

Do you hear the ha and ho sahibji
They beat the suars' den
And in a moment you will see
The monarch of the glen.

Oh Muniappa you big disgrace
There is no pig again,
You've brought me on a wild goose chase
Go hang your head in shame.

My Lord there was a boar I'll swear,
I saw him but yesterday!
But a panther took him from his lair
So the "Hanka-wallahs" say.

Please don't be angry Prince sublime
We'll try another day
You know I've worked full over time
Please do not stop my pay.

Oh you are kind to such as me
I know your noble heart;
But the Memsahib taunts with jest and glee
She tears my soul apart.

And now "Huzoor" I'll go my way
And tend my children three,
But I'll return on another day
When the jungle signs I see.

Oh lovers of the sport of kings
These trackers of Big game,
They're old and fragile; ghost-like things
That keep alive a flame.

So please be kind—they cannot beg,
Nor go from door to door;
For they have lived by lung and leg
In search of the great wild boar.

Students Corner

Protecting Wild Life

PHILIP DREW

Seventy Thousand British Children join World movement

Since the Wildlife Youth Service, an organization of the World Wildlife Fund, was founded nearly three years ago it has already built up in Britain an "army" of nearly 70,000 people aged from 5 to 18 years to serve in the great world movement to protect animals.

The President of the W.Y.S. is Peter Scott, famous all over the world for his work as Director of the Severn Wildfowl Trust in England and as a foremost international authority on birdlife generally. He is also president of one of the Service's two clubs—the Wildlife Rangers—which is the senior and much the bigger, and whose members are aged 11 to 18.

Younger animal-lovers can join the Panda Club, which is open to children from 5 to 11. Its president is the actor Harry Secombe.

Outdoor Activities

Among the most important W.Y.S. activities, which are organized by its Director Cyril Littlewood, are adventure camp holidays, field study rambles, visit to zoos and reserves, and, of course, lectures and film-shows on all kinds of topics covering animal, bird and plant life.

The main object is to preserve the animals and birds which are in danger of losing the fight against the growing number of forces threatening their existence. For, in Britain, just as in other countries, there are wild animals and birds that in the last three or four decades have become very rare, and others are becoming so.

Native Animals and Birds

Of course, in Britain one does not find what may be called the "exciting" wild beasts like giraffe and rhinoceros, for which the African Game Reserves are famous, or such exquisite birds as Australia's lyre-bird. But there are interesting animals like the pine-marten and pole-cat, and beautiful birds such as the blue kingfisher, and quaint ones like the bearded tit, which have become rare—in some cases so rare they are threatened with extinction.

The British do not want to lose these, any more than Tasmania would like to lose the duck-billed platypus; and it is by the encouragement of schoolchildren of all ages to study and become interested in the wildlife of their own country that young Britons are growing up to think more about the greater problem of protecting animals everywhere.

As Mr. Littlewood says, in the past 50 years at least 75 kinds of wild animals have become extinct in the world. In most cases this need not have happened, and would not have happened, if someone had taken the trouble to do something to protect them.

Saving the Avocet

An outstanding example of doing something is Peter Scott's work for the avocet—a rare sea-bird—which had become virtually extinct in Britain. Some years ago, however, one or two pairs turned up on the coast, and by careful, patient work Mr. Scott and his helpers induced them to remain and breed there.

Soon there was a small "colony" of these lovely, graceful waders. Now (in protected nature reserves) there are some hundreds of pairs and the bird is well-established once more.

Mr. Littlewood spends a lot of time lecturing in schools all over Britain. An interesting, and most valuable, activity is the encouragement of exchanging correspondence between British children and those of other countries, enabling them to tell each other of the various projects and schemes going on to help their country's animals. If one would like to get in touch with the W.Y.S. about this, he or she can write to: Mr. Cyril Littlewood, Director, Wildlife Youth Service, 120A, London Road, Morden, Surrey, England.

[Schools in India need such organisations to inculcate a love for wild life among the students and the Doon School, Dehra Dun is to be congratulated on having such an organisation. Nearly a hundred students of the Doon School are members of the Wild Life Preservation Society of India. Other Schools in India can follow the Doon School and help save our vanishing wild life heritage.—Editor.]

National Bird Emblems

Australia	... The Swallow	India	... The Peacock
Belgium	... The Kestrel	Japan	... The Green Pheasant
Ceylon	... The Jungle Cock	Netherlands	... The Spoon Bill
Denmark	... The Sky Lark	North Ireland	... The Oyster Catcher
Germany	... The White Stork	Sweden	... The Black Bird
Great Britain	... The Robin	United States of America	The Bald Eagle
Guatemala	... The Quetzal	Venezuela	... The Troupial
Hawai	... The Nene Goose	Luxemburg	... The Goldcrest
Iceland	... The Gyr Falcon	South Africa	... The Blue Crane



SWAMP DEER

(Note—For article see page No. 31)

Photo—Kunwar Arjun Singh.

PHOTOGRAPH ON THE OCCASION OF FIRST ANNUAL CONFERENCE OF THE WILD LIFE
PRESERVATION SOCIETY OF INDIA (BIHAR STATE BRANCH)



Sitting (L. to R.):—Mr. Rajhansh, ADFO, Monghyr; Kr. Chandrabhal Singh, Senior Vice-President;
Mr. J.N. Pande, Conservator of Forests, Maghadh Circle; Mr. S.P. Shahi, Chief Conservator of
Forests, Bihar (Chief Guest); Kr. Surendra Singh, President; Dr. R.L. Ram and Mr. C.D. Pande,
D.F.O. Monghyr.

Standing 1st Row:—Col. Paster, Mr. N.M. Sharma, Mr. J.D. Barkelley Hill, Mr. S. Singh, Prof. A.A. Khan,
(Hony. Secretary), Prof. B.N. Singh, Prof. U.N. Singh, Prof. B. Prasad and A. Jha, Principal,
Jamui H.S. School.

News From States

BIHAR BRANCH

First Conference of Bihar Branch of the Wild Life Preservation Society of India held at Jamui (Bihar)

The first conference of the Bihar Branch of Wild Life Preservation Society of India was held under the presidentship of Mr. S.P. Shahi, Chief Conservator of Forests, Bihar, on 11th May, 1966. The arrangements of the conference were made by the members of the society and for this purpose a Reception Committee was formed by them under the chairmanship of Kumar Surendra Singh with Prof. A.A. Khan, as secretary.

The Chief Guest Mr. Shahi was received at the New Inspection Bungalow, Jamui by the members of the society headed by its president Kumar Surendra Singh. After tea with the members Mr. Shahi visited the office alongwith the Conservator of Forests, Magadh Circle, Mr. Pande. Mr. A.A. Khan received the C.C.F. and C.F. at the office and requested him to hoist the Society's Flag. After the Flag was hoisted a photograph of the members of the society was taken with the visiting officials. The members held a long discussion with the C.C.F. and C.F. on the problem facing the preservation of Wild Life in Bihar. It was agreed that the task of preservation has become very difficult with mining, greater industrialisation, and construction of big dams in forest areas. But the greatest problem is the misuse of crop protection guns by the licensee as they do not observe the game law and in the name of crop protection indiscriminate killing is done by them. The members suggested immediate appointment of Game Wardens and Hony. Game Wardens to check illegal shooting and enactment of special laws to deal with the poachers. Mr. Shahi gave a patient hearing and assured to do the needful.

The OPEN CONFERENCE was held at 7 p.m. on the lawns of Higher Secondary School, Jamui, where a special platform was raised for the occasion. The venue was nicely decorated with flags, festoons, photographs of Wild Life, presented by the Indian Wild Life Board, and coloured bulbs. It was attended by more than 5000 people, including large number of Forest Officials and Civil Officials. The conference started with a welcome song by the girl students of the school. Shri S.P. Shahi, Chief Conservator of Forests was presiding. Kumar Surendra Singh in his welcome speech made an earnest appeal to the people of Bihar to protect the wild life of the State, which is a most valuable treasure and precious asset of the country. Further he requested the people to control their criminal appetite for wild animals

flesh and to refrain themselves from indiscriminate shooting, otherwise the entire stock of wild animals, will vanish in the near future and posterity will hold the present generation guilty for this inordinate and rapid annihilation of the wild life.

The messages received for the occasion from the Hon'ble Vice President of India, Dr. Zakir Hussain, His Highness the Maharaja of Nabha (President of the Society), H.H. Kotah, The Minister of State, incharge Forests, Bihar, Maharaja of Dumraon and others were read.

The Secretary, Prof. A.A. Khan read the report of the society stating the aims and object and the service which the society is rendering in the cause of the preservation of wild life in Bihar since the formation of the branch in Bihar.

The president of the conference Shri S.P. Shahi in his presidential address explained in detail the importance of the wild life and the steps which are taken or going to be taken by the Department of Forests to protect the Wild Life of Bihar. He told the gathering that he will do his best to protect the wild life of Bihar and appealed for people co-operation in this noble cause. He thanked the members of the Bihar Branch of the Society for taking the cause of the preservation of wild life in the state and promised his all support.

With a vote of thanks from Shri Prof. V.N. Singh the meeting terminated.

Later Films on Wild Life were displayed by the Forest Department and Audio-Visual Section of Education Department. These films were seen by more than ten thousand people with keen interest.

A community dinner was also arranged by the members which was attended by the visiting officials and others.

A.A. Khan.

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UTTAR PRADESH

Uttar Pradesh Wild Life Board

Early in April, a meeting of Uttar Pradesh Wild Life Board was held at Pipri, Mirzapur District, in picturesque surroundings overlooking Rihand Dam reservoir. Shri Charan Singh, Minister for Forests, presided. This part of Uttar Pradesh has been famous for its scenic beauty and as a happy hunting ground for sportsmen for more than a century. But now the area needs special protection for wild life primarily because of its being industrialised on account of its mineral wealth. It is also the District where the Indian Lion has been found a second home. Members of the Board had a comfortable stay and Shri V.B. Singh, Chief Wild Life Warden and Secretary of the Board deserves praise for the excellent arrangements. Members enjoyed boating in the Rihand reservoir and a group along with Shri Charan Singh was taken to an area by the Raja of Barhar, Shri Anand Brahma Shah, where he has with

skill and perseverance managed so far to protect and breed a few herds of fast vanishing Blackbuck, though the area now belongs to the Forest Department. More than two hundred Blackbuck were shown to the Forest Minister and the party and Shri A.B. Shah pleaded that Blackbuck in the area be given special protection particularly against poachers who come by jeeps, use flashlights to dazzle and slaughter the beautiful antelopes. He finds it difficult to hold out any longer against poachers, who have killed another hundred during the past five months (April-August).

The U.P. Wild Life Board is singularly fortunate in having in Shri Charan Singh an enthusiastic conservationist, as President and expects red tape to be cut and its decisions implemented quickly. On the suggestion of Dr. R.N. Misra, Honorary Secretary, Wild Life Preservation Society of India, a Sub Committee has been appointed to suggest measures for the unique and endangered wild life of Himalayan region on the borders of Uttar Pradesh. Another Sub Committee has been appointed to examine and suggest measures for improvement of Parks and Sanctuaries. The Board considered in detail the proposed draft of the Bill on Wild Life to be introduced in the U.P. Legislature. The measure is a comprehensive one and would go a long way in Conservation of Wild Life not only inside Government Forests but outside also. It deals with trade in fur and feather and regulates and controls the same. The Board hopes for an easy passage to the Bill in the Legislature.

R.N. Misra.

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NEW FASHIONS

New York Stores have advertised for sale at fancy prices Tiger and Panther Skin Coats and rugs. Conservation bodies in United States have issued vigorous protests against such sales and fashions and urged Americans not to buy from such Stores. We add our vigorous protest to that of other Conservation Bodies and appeal to traders in our country not to be a party to extinction of our beautiful animals for profit.

Thoughtless fashions for animal skins lead to inflated prices being paid by foreign buyers for such skins and make poaching profitable. Trade agents penetrate deep into remote areas only to tempt people to trap panthers and poison tiger Kills. Reports of such transactions are not uncommon in India.

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LECTURES ON CONSERVATION

Members of the Wild Life Preservation Society who are willing to deliver lectures or show slides and films on Wild Life in Schools and clubs in their locality are requested to write

to us to help them arrange such lectures and shows. This will go a long way to spread a love for wild life amongst the youth of the country. Some members are already doing so with great success.

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HANGUL or KASHMIR STAG

Mr. E.P. Gee who visited Kashmir Stag Sanctuary near Srinagar sometime back found to his great disappointment that a sheep breeding farm is located inside the sanctuary and that more than a thousand sheep compete for food with the herds of Kashmir Stag. If this continues any longer the herds of Kashmir Stags will dwindle and die. It is an imperative necessity that the sheep breeding farm be located elsewhere.

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LONDON MOSCOW ZOO ROMANCE

International marriage brokers attempted last spring to mate London Zoos' girl Giant Panda with Moscow Zoos' boy Giant Panda by flying Chi Chi from London to Moscow. The attempt failed as Chi Chi and An-An showed more interest in fighting than wooing. They were kept in separate cages and have by now got accustomed to each other. They rub noses and are now talking to each other with honking noises. They are to be put in the same cage now and results are expected.

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SHIWALIK DIVISION—PEAFOWL EAT JUNGLE FOWL EGGS

A member of Wild Life Preservation Society reports from Saharanpur that Peafowl are eating Jungle Fowl eggs and the protection given to Peafowl as the National Bird of India may lead to competition for food and the final elimination of Jungle Fowl from some areas.

N.E. Collias, Professor of Zoology, California University and member of Wild Life Preservation Society was consulted and writes:—

I was interested in your mention of the observation by some members of the Society of the destruction of jungle fowl eggs by peafowl. You asked me to indicate ways in which the matter could be studied.

(1) Evidence that peafowl are actually doing this to a significant degree. Direct observation of such a phenomenon is probably by lucky chance. By giving chicken eggs to tame or captive pea fowl and to other suspected predators in captivity, for example, jungle

crows in a zoo, one could perhaps discern differences in the pattern of egg destruction by different egg predators, enabling identification of the predator responsible.

(2) Use of such signs in combination with other signs in the field to ascertain the relative frequency with which jungle fowl eggs are destroyed by peafowl in comparison with the frequency of unmolested nests, or of nests with eggs destroyed by other predators.

(3) Checking to see if there is an inverse relationship between the abundance of peafowl and of red jungle fowl in any given area during the breeding season. One index to the abundance of the two species could be obtained by counting the number of jungle fowl crowing or of peafowl screaming from dawn to about an hour after.

As you can see such a project would be a rather tall order, although much useful information might well result from the effort.

[Members and their friends who observe such destruction of eggs are requested to write to the Honorary Secretary—Editor.]

NEWS AND NOTES

The Society was very happy to receive a Himalayan Black-bear cub from Mr. C.L. Bhatia, Divisional Forest Officer, Uttarkashi and thanks him for the same.

The bear cub was presented by the Society to the Zoological Gardens, Lucknow and is reported to be doing well there.

Letters to the Editor

Dear Sir

In your issue for October, 1964 (p. 60), you printed my letter commenting on some of the items published in an earlier number and which included the series 'For the Wildfowler—I, The Spotbill of India' by M.J.S. Mackenzie. This was followed (April, 1965) by a letter from Mr. R.W. Scott, in which he objected to:

(1) my statement that the name "Spotbill" for the Indian duck *Anas p. poecilorhyncha* was based on the red marks at the base of the bill and not on the yellow tip,

(2) my reference to the Burmese and Chinese forms as the "Grey Duck" which name, he said, referred to an Australian species,

and

(3) my doubting the report of the Chinese form (*Anas p. zonorhyncha*) in eastern India.

As regards the origin of the name Spotbill, I have looked up some of the references and find that opinion is divided. Some, including Oates and Stuart Baker, held that it relates to the red spots at the base of the bill and refer to the Burmese and Chinese forms (which lack these spots) as the Grey Duck. However Ripley in his more recent *Synopsis* refers to all three races under the name Spotbill. If it were a matter of greater import, one could make a deeper study of the name.

However, when I referred to Grey Duck, I was not suggesting that the Australian species (*Anas superciliosa*) which is also known by this name occurred in Assam. The same common trivial or English name may be used in many parts of the world but not with reference to the same species. It is for this reason necessary to use the apparently cumbersome but essential scientific names to avoid misunderstandings.

As regards the last point, I have exchanged letters with Mr. Mackenzie and he sent me two specimens which appeared to be of the Chinese form (*Anas p. zonorhyncha*). This identification has been confirmed by Dr. Dillon Ripley of the Smithsonian Institution, Washington, U.S.A.

As only one record (Inglis in Bihar) is accepted for Indian limits, it is interesting to note that Messrs Mackenzie and Scott have found it a frequent visitor in eastern Assam. A more detailed note on the identification of the three races in India, together with examination of the earlier records, is under preparation for the Journal of the Bombay Natural History Society.

Yours faithfully,

Humayun Abdulali.

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Dear Sir,

I was most gratified to hear that my efforts to convince Mr. Humayun Abdulali that China Spotbill is a regular winter visitor to Assam, and therefore the question of the validity of my first article for 'Cheetal' has now been accepted. It is also of interest to note that in a book, 'The Water-fowl of India and Asia' by Frank Finn printed by Thacker Spink Co. of Calcutta in 1909 the following was stated:—

"The Yellow-nib (*Anas zonorhyncha*) and has full claim to rank as one of our Indian Ducks, as in addition to the above records, several collectors have met with it from 1901 onwards in the Dibrugarh District."

This last dispels any theory about a recent invasion. I'm afraid the most probable reason is that the China Spotbill just has not been recognised or noted owing to a want of sufficient knowledge or interest of the local Wildfowlers. I sincerely hope, that slowly, we in India who enjoy so much that nature offers many become more conscious of details such as this; which is one reason why I have been writing these articles in 'Cheetal'.

Yours sincerely,
Sd. M. J. S. Mackenzie

Dear Sir,

In your issue for April, 1966 (pp. 66-69), Mr. R. S. Holdsworth has made some interesting observations on Indian attempts at wild life preservation from the sportsman's point of view. While I am in general agreement with most of what he says, I feel that I must draw attention to one point of difference—his objection to a bag limit on the Red Jungle Fowl.

It is not quite clear from his letter whether the restriction on the number of birds per month per licence to 20 applies to all birds collectively or is confined to Jungle Fowl—the former I agree would be unreasonable but, in my opinion, the latter is ample.

Over the last few years, cover and shelter available to all birds and animals has been consistently declining all over the country, and with it the inhabitants. Times and conditions have changed and we must adapt ourselves to those that exist—in 1921, when the Prince of Wales visited India, some 12,000 Sandgrouse were shot at Bikaner by his party, while Lord Linlithgow was associated with a bag of over 4,000 ducks at Bharatpur. I have not shot in the Duns, but in Maharashtra would be happy to include a couple of Grey Jungle Fowl in a day's shooting with another gun or two. We have here today bag limits of 10 each of Sandgrouse and duck per gun per day and I am quite sure they afford the same sport and enjoyment if handled the right way and in the right spirit. All the 20 birds need not be shot on the same day, nor would most of us care (or be able) to shoot the same (or any)

species more than fifteen times a month. If one is in camp, big game is usually the main objective and the odd jungle fowl or partridge shot for the pot would be sufficient.

It is no secret that shooting for sport is expensive and if any shikari wishes to calculate the cost of the meat he brings home, he will find it cheaper to dine at the most expensive hotel.

Until such time as we have the right legislation in all States and suitable means of enforcing them, it is I think a step in the right direction to try and get the few people who are willing to respect the law to do their shooting in a reasonable manner. In the United States where the manufacture of shooting and fishing accessories is one of the first three industries (next to oil and automobiles), there is a bag limit of three duck per gun per day, and still millions go out. If everybody got his limit every time he went out, there would soon be nothing at all left.

While it is true that many licensed shikaris evade the bag limit if the opportunity arises, the presence of such legislation, together with even a few sportsmen willing to observe the conditions, will certainly go some way towards offering all our birds and animals the protection they need so badly.

As matters stand, all reference to wild life preservation reminds one that the Indian Board for Wild Life and other State Boards have passed and re-passed many resolutions for the protection of wild life. What we need to do is to ensure that these suggestions and rules are not flagrantly by-passed, not only by the villagers but also by the V.I.Ps.

Yours faithfully,
Humayun Abdulali.

Ourselves

At the risk of repetition, we must declare that while the Society's catalytic role has stimulated healthy trends and activity in the sphere of wild life at the National and State levels, our own organisation is not receiving the urgently needed aid without which we must remain of restricted utility.

The life-blood of an organisation like the Society must necessarily be popular publications of original works, of compilation and of field research. Both publication and field research require financial resources of a magnitude which only outside help can assure us. Even to-day, after eight years of constructive effort behind us, eight years during which we have more than proved our worth to the skeptics, who are joining us as an acknowledgement of the fact, our published work is confined to a six-monthly issues of 'Cheetal'. The fact that 'Cheetal' is being found uniquely useful all over the world only underlines the necessity of improving its quality, increasing its frequency, and pioneering further publishing. We have several projects of research and publication which could be actively pursued if funds were made available by departments and organisations which are giving such grants-in-aid to other organisations, perhaps, less deserving of support.

Even 'Cheetal' needs to be made quarterly, and its editorial standard and production require the backing of office-staff and secretarial help without which it is difficult to attain our objective of making this 'only journal of its kind in Asia' into a truly model forum for the Conservation effort.

All these considerations have led us time and time again to apply to Government Departments and individuals, and more recently to organisations outside India also, for aid. We received a grant-in-aid from the Ministry of Food and Agriculture, Government of India, last year of Rupees One Thousand, for which we are thankful and the question of making it a recurring grant is fraught with administrative difficulties. This is now under study. The response from individuals has been generous and encouraging, but is, again, not a recurring phenomenon on any large scale, even though some staunch supporters of the Society, prominently amongst whom our President, are making our continued success possible with their generosity.

Our case was given weighty and due consideration by the International Union for the Conservation of Nature and Natural Resources, with its Headquarters in Switzerland, in collaboration with the World Wildlife Fund, but it has not been found possible, for financial and other reasons, to make a grant-in-aid to the Society as yet.

Till such time as these and other efforts of our's to gain financial support to increase and improve our services bear fruit, we have to fall back upon ourselves, and our members. If we can double our membership, and circulation of 'Cheetal', and if members would make a note to send in their subscriptions in time each year, much improvement is possible without outside assistance.

Editorial Notes

An Indian Wild Life Fund

While on this sore subject of funds for wild life work for our Society, it might not be out of place to examine the whole complex of funds needed for the wild life and conservation effort all over India.

It has been advocated by eminent wild life workers, generally amateurs with little experience of actual administration, be it said, that the establishment of National Parks and Sanctuaries and the provision of hotel and other facilities at these places, would convert them into tourist attractions, and thus raise revenues from this source, to offset any expenditure on the facilities, and provide additional resources for aid to conservation work elsewhere. It does not work out so simple in practice. For one thing, if the central sanctum sanctorum of a Sanctuary or Park is kept undisturbed from all forest-exploitation, the loss of revenues can be substantial. Then, too, if we discount the aesthetic and non-material value of wild life, as do these advocates of the 'tourist revenue' approach, then we have to contend with the lack of co-ordination between State Governments and the Centre, on the one hand, and between Government Departments with overlapping interests in wild life and tourism, on the other. The result of this lack of co-ordination is felt in the lack of a concerted approach or policy, and this is where the 'tourist revenue' approach loses much of its undoubted validity, for if co-ordination were possible, there would not be this trouble in the first place.

We fail to see how we are going to compensate the loss of revenues to the forest departments of States, or apportion earnings from tourism, or write off certain losses or expenses incurred in having efficient wild life departments, against an overall gain to the country of foreign-exchange; foreign-exchange, that bug-bear that is held up as 'the plum' or reward for efficient management of wild life. We are very much afraid that we have to fall back upon the need for a concerted approach at Countrywide-level, rather than a fragmentary

advocacy of minor revenue-earning ideas only, though these are without doubt useful, and must form part of the overall policy.

Which brings us to the idea mooted elsewhere by Mr. M.D. Chaturvedi, (the 'Great' Chaturvedi, for those who might confuse with namesakes!), that certain channels should be tapped for collecting resources for wild life work. We agree with his suggestions, and would suggest other sources, too, but we feel it would be still preferable to co-ordinate States' efforts into a National Policy, as was envisaged by the Indian Board for Wild Life, and to create a resources-pool under an autonomous body, like the Indian Board for Wild Life. This proposed 'Indian Wild Life Fund' could then undertake all the work of publication, field research and advisory functions so urgently needed. It is almost sure that States will use the facilities which such a 'Fund' may be able to provide.

Apart from the sources suggested elsewhere, we would here suggest an 'appeal' to individuals and business houses, to be made by the authority of this 'Fund'. Revenues and earnings from licences on 'sporting arms', import duty on arms and ammunition, shooting and fishing permits, 'Gate Earnings' at zoos and sanctuaries, fines, confiscations, wild life week collections, sale of animals and birds, and export of wild life products, are the other major sources of possible finance for such an 'Indian Wild Life Fund'.

MR. PETER SCOTT'S SUGGESTIONS FOR THE GHANA: APPLICABILITY ELSEWHERE—

We publish elsewhere an excellent report by the renowned Peter Scott, on visit to the Keoladeo Ghana at Bharatpur. We were struck, reading it, by the topicality and applicability of his suggestions for improvement, to almost every sanctuary or National Park in India. It seems that wild life management and the management of Parks and Sanctuaries is not a 'science' just in name, but carries genuine scientific validity, or how else would Mr. Scott's remarks be valid elsewhere, too.

He advocates a three-square-mile strict preserve within the Ghana, where no form of disturbance or shooting is to be permitted. Such a stipulation, after the much discussed and widely-accepted concept of the *sanctum sanctorum* would benefit many other sanctuaries of India, where human interference penetrates deep into the interior, beginning on the periphery.

Sound range management, a word almost new to the wild-life lexicon in India, can be seen to be crushingly needed in Parks like that at Hazaribagh, and in areas of the Rajaji Sanctuary, where over-grazing and excessive lopping by 'gujars', have created a situation where there is hardly any difference between the sanctuary and the surrounding areas, as wild life follows feeding opportunity, and not sanctuary boundary-pillars!

Peter Scott's remarks on the Observation Posts at Bharatpur are acutely valid elsewhere, where these OPs stand out like scars and eye-scars from miles around, and animals wouldn't think of straying anywhere near these concrete pill-boxes with 'hats'! The OPs must be camouflaged, surely a common-sense necessity, and the approaches to them concealed by artificial growth where necessary.

Then, equally, there seems little point in building rest houses and tourist-lodges near shops and habitation within sanctuaries, rather than in secluded spots where visitors might hope to get glimpses of wild life from their own verandahs and windows.

Additional facilities and arrangements should be made for school-parties and field-study groups, and the wardens and staff posted at Sanctuaries and Parks should, in the slack season, undertake field research work, or even compilation of data for their superior staff. At present, even the maintenance of diaries and field-records is chancy and inadequate. Dr. George Schaller, the eminent wild life ecologist who spent a year in India recently doing a study of cheetal deer, never moved in the forest without a battery of cameras and the inevitable pencil-and-diary, in which he recorded as he saw. A trait that might seem eccentric, but expresses the scientific approach par excellence, without which Sanctuaries alone can do little.

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Wild Life Transplants and Breeding Stock:

Elsewhere, we publish Mr. E.P. Gee's resolute rejection of the desirability of introducing the Indian Rhinoceros (*R. unicornis*) into one or two places other than its present restricted habitat in Assam and Bengal. Though we agree with Mr. Gee's views as to the difficulties and problems such a transplanting of rhinos would face, we cannot but express some doubt as to the finality of such a verdict for several reasons.

'There are more things in Heaven and Earth than are dreamed of in our' Ecology, as Hamlet said; an epidemic might wipe out the rhino population of Kaziranga, where the largest pocket of this animal exists. Floods yearly devastate the Kaziranga, grassland, and even as we write, the rhinoceros and other animals there have taken refuge in the neighboring Mikir (and North Cachar?) hills and other high ground. It is only too probable that these annual visitations reduce the rhino population all unknown to the best wild life observers of Assam. Some casualties, are, indeed, reported. Apart from which, political considerations alone should persuade us of the wisdom of introducing the rhinoceros elsewhere.

As for the difficulties and problems of breeding successfully the rhino which might be introduced, say, into Uttar Pradesh's eastern districts, these are only to be expected.

Given adequate scientific planning, there is no reason why such a colony would not flourish and breed, initially under controlled conditions. After all, even orang-outans and oryx have been successfully 'colonised' elsewhere than in their native habitat. Rhinoceros flourished in other parts of India not much over a century ago, and their chances of survival in colonies are better by far.

We are not advocating the introduction of exotic species at all; but we do feel that keeping rhinoceros restricted to their present habitat would be to much like storing all eggs in one basket, and not desirable at all.

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Lions in U.P.

Encouraging news has been received from Mirzapur. Three lions were seen by observers (not forest officers) in the month of July and August. We are now sure that lions leave the district in some seasons but return during rains. Thus the experiment of finding a second home for the lions in India is successful.

Ordinary Members:-

1. Major-General F. J. Glover, British High Commissioner, Chandigarh, New Delhi.
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3. Mr. S.M. Bashir, Bashir Lodge, Kanpur.
4. Raja Bajrang Bahadur Singh, of Bhadri, Vice-Chancellor, Rudrapur Agriculture University, Panthnagar, (Naini Tal).
5. Mr. J.G. Oliver, Kettela Tea Estate, Borgang, P.O. Darrang, Assam.
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12. Mr. Nolan Peter William Moore, 144, Jor Bagh, New Delhi-3.
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14. Mr. S. Moolgaokar, 'Mayfair', Little Gibbs Road, Malabar Hill, Bombay-6.
15. Lt-General Sir Harold Williams, K.B.E., C.B., 4, Kushak Road, New Delhi.
16. Major A.A. David, 'David Villa', Civil Lines, Ajmere, (Rajasthan).
17. Mr. John W. Moyer, Chicago Natural History Museum, Chicago (60605), Illinois, U.S.A.

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11. Mr. N.P. Singh, Etah Dairy, Etah, U.P.
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15. Dr. L.D. Fuller, c/o American Embassy, Chanakyapuri, New Delhi.
16. Raja Pratap Singh of Jasden, 23, Meher Apartments, Anstey Road, Bombay-26.
17. Diwan Surinder Lal, 'White House', Shivpuri, (Madhya Pradesh).

Professional Members:—

1. Mr. P.C. Gogoi, D.F.O. Nowgong Division, P.O. Nowgong, Assam.
2. Mr. H.C. Pant, D.F.O. Ramnagar Forest Division, Naini Tal.
3. Mr. K. Nanu Nair, B.A., Forest Ranger, Kulamavu P.O., Via Todu Puzha.
4. Mr. S. K. Balasundaram, Forest Officer, Rohtas Industries, Ltd., Chatra, District Hazaribagh, Bihar.
5. Dr. R. N. Mathur, 49, Lytton Road, Dehra Dun.
6. The Honorary Secretary, Peermade Wild Life Preservation Society, Stagbrook Estate, Peermade P.O., Kerala.
7. The Director, Zoological Park, New Delhi.

Educational Members:—

1. Dr. R.L. Ram, Principal, K.K.M. College, Jamui, Dist. Monghyr, Bihar.
2. The Librarian, Mayo College, Ajmer.
3. The Principal, Sainik School, Amravathinagar P.O., Coimbatore District, Madras State.
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LIBRARY

The following books were received for the Society Library. The Society thanks the donors and requests members to donate more books or money to make the library more useful.

No.	Name of Book	Remarks
62.	Mammals of India by T.C. Jerdon (1874)	Purchased
63.	Himalayan Barbary by C.F. Haimendorf	Presented by Dr. T.H. Bassett
64.	Search of Spiny Babbler by S. Dillon Ripley	-do-
65.	Secret Lands Where Woman Reigns by Gabrielle Bertrand	-do-
66.	Hunters of the Stormy Sea by Harold McCracken	-do-
67.	There She Blows by Hakon Mielche	-do-
68.	The Long Walk by Slavomir Rawiez	-do-
69.	Soondar Mooni by E.O. Shebbeare	-do-
70.	Wilberforce Our Monkey by James Milne	-do-
71.	Zoo Search in Ceylon by Heinz Randow	-do-
72.	Times Big Game Photographs Album by Marcuswell Maxwell	-do-
73.	Elephants and Other Big Game Studies (Photographs) Times, London, 1930	-do-
74.	A Coloured Key to Wild Fowl of the World by Peter Scott	Purchased
75.	Practice of Wild Life Conservation by Leonard W. Wing	-do-
76.	A Hunter's Saga by W. Robert Foran	Presented by Mr. D.E. Wilson
77.	Days and Nights of Shikar by Mrs. W.W. Baille	-do-
78.	Eleven Leopards by Norah Burke	Purchased
79.	Recreational Use of Wild Lands by C. Frank Brockman	-do-
80.	Wild Life Management, Volume I, by Reuben Edwin Trippensee	-do-
81.	Wild Life Management, Volume II, by Reuben Edwin Trippensee	-do-
82.	Bound Volume of 'Cheetal' for 1964 and 1965	—
83.	The Birds (Life Nature Library)	Purchased
84.	Land and Soil by Dr. S.P. Raychaudhuri	-do-
85.	Common Trees by Dr. H. Santapau	-do-

TOURISTS' GUIDE TO NATIONAL PARKS AND SANCTUARIES

Sl. No.	Name of National Park or Sanctuary	District and State	Area in sq. miles	Best months for visiting	Main Wild Life Attraction	Enquire from
1	Bandipur and Venugopal	Mysore Distt. Mysore	310.34	January to July.	Bison, Elephant	Divisional Forest Officer, Mysore City, Mysore.
2	Belta	Palaun, Bihar	96.20	February to June.	Tiger, Panther, Bison	Divisional Forest Officer Daltonganj South, P.O. Daltonganj, Bihar.
3	Corbett National Park	Garhwal, Nainital and Almora. Uttar Pradesh	125	February to May.	Elephant, Tiger, Panther, Cheetal, Sambhar Fishing.	Chief Wild Life Warden Uttar Pradesh, Lucknow, U.P.
4	Dachigam	Srinagar Jammu and Kashmir	63	April to October.	Kashmir Stag, Musk Deer, Pheasants, Himalayan Bear	Chief Conservator of Forests, Srinagar, Kashmir.
5	Gir Forest	Junagadh, Gujarat	525	December to May.	Indian Lion	Divisional Forest Officer, Gir Division, Junagadh, Gujarat
6	Jaldapara	Jalpaiguri, West Bengal	36	January to April.	Rhino, Elephant, Tiger	Divisional Forest Officer, Cooch Bihar, W.B.
7	Kanha	Mandla, Madhya Pradesh	97.7	February to June.	Tiger, Bison, Swamp deer, Chital, Black-buck	Divisional Forest Officer, West Mandla Division, Mandla, M.P.
8	Kaziranga	Sibsagar, Assam	166	January to April.	Rhino, Buffalo	Divisional Forest Officer, Sibsaagar Division, P.O. Jorhat, Assam.

(Contd.)

Sl. No.	Name of National Park or Sanctuary	District and State	Area in sq. miles	Best months for visiting	Main Wild Life Attraction	Enquire from
9	Keoladeo Ghana	Bharatpur, Rajasthan	7000 Acres	August to February.	Migratory Water Birds and Cheetal	Divisional Forest Officer, Bharatpur, Rajasthan.
10	Mudumalai	Nilgiris, Madras	120	January to June.	Elephant, Bison, Tiger, Panther, Bear, Nilgiri Ibex, Spurfowl	State Wild Life Officer, 136, Peters Road, Madras-14.
11	Periyar Lake	Kottayam, Kerala	300	December to May.	Elephant, Bison, Tiger, Bear	Wild Life Warden, Peermade, Kerala.
12	Rajaji	Saharanpur, Uttar Pradesh	173	December to June	Elephant, Tiger, Bear, Cheetal	Divisional Forest Officer, Siwalik Forest Division, Dehra Dun, U P.
13	Shivpuri	Shivpuri, Madhya Pradesh	61	November to June.	Tiger, Panther, Sambhar, Bear	Divisional Forest Officer, Shivpuri, M.P.
14	Tadoba	Chanda, Maharashtra	45	December to June.	Tiger, Panther, Bison, Sambhar	Chief Wild Life Warden Maharashtra State, Poona.
15	Vedanthangal	Madras, Madras	74 acres artificial lake	November to April.	Pelicans, Flamingoes, Black-buck	State Wild Life Officer, 136, Peters Road, Madras-14.

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भारत में सर्पों का आदर

राजेन्द्र बहादुर सक्सेना, एम०एससी०, ए०आई०एफ०सी०, उप अरण्यपाल

भले ही आजकल कुछ लोग सर्प को देखते ही मारने का प्रयत्न करने लगते हैं, परन्तु भारत में अधिकतर लोग सर्प को नहीं मारते और उसे भय मिश्रित आदर से देखते हैं। ऐसा वे उन रीति-रिवाजों के अनुसार करते हैं जो प्राचीन काल से चले आ रहे हैं। भारत में सर्पों की पूजा भी होती है। अत्यन्त प्राचीन काल से नागों को विशेष आदर की दृष्टि से देखा जाता है। उनको नाग देवता कहते हैं। नाग पंचमी और अनन्त चतुर्दशी हिन्दुओं के पवित्र त्यौहार हैं, जबकि घर-घर नागों की पूजा की जाती है। पौराणिक एवं साहित्यिक सन्दर्भों से विदित होता है कि भारत में सर्प, विशेषकर नाग सम्पूर्ण देश में धर्म, सभ्यता, लोक कथाओं तथा किवदन्तियों के विषय रहे हैं और उनको आदर की दृष्टि से देखा जाता रहा है। केवल भारत में ही नहीं, एशिया तथा अफ्रीका के अन्य देशों में भी सर्पों को पवित्र माना जाता रहा है और उनकी पूजा भी होती रही है, परन्तु जितना सम्मान सर्पों को भारत में मिला है उतना कदाचित किसी अन्य देश में मिला हो। सर्प और सूर्य की आराधना का घनिष्ठ सम्बन्ध है। भारत में सर्प और सूर्य दोनों की पूजा होती रही है। बेबिलोनिया के निवासी सर्पों की पूजा करते थे। सीरिया में लगभग ईसाई धर्म के उत्पत्ति के समय तक सर्पों की पूजा होती थी। मिस्र में अत्यन्त प्राचीन काल से सूर्य की पूजा होती थी और फणिघर (हुडेड सर्पेन्ट) पवित्र माना जाता था। चीन तथा उसके समीपवर्ती देशों में सूर्य तथा सर्प की पूजा धर्म का अत्यन्त प्राचीन रूप प्रतीत होती है। ड्रेगन जो कि नाग का एक विकृत रूप है, चीन का प्रतीक माना जाता है। ड्रेगनराज लिंग वांग के अनेकों तीर्थ-स्थल हैं। कोरिया में लोग सर्पों को खाना खिलाते हैं और उनकी पूजा करते हैं मानों कि उनके घर के प्रतिपालक हों। जापान में भी सूर्य और सर्प की पूजा होती है। तिब्बत के निवासियों के विश्वास के अनुसार नागराज लू, पल्टी भील के अन्दर महल में रहता है और झरनों, नदियों तथा भीलों पर नाग देवताओं का अधिपत्य माना जाता है। मध्य तथा पश्चिम अफ्रीका में सर्प पवित्र माना जाता था और किसी महान कार्य को करने से पूर्व सर्प की बलि देना आवश्यक था। जब स्पेन के निवासियों ने दक्षिणी अमेरिका पर आक्रमण किया था तो उन्होंने देखा कि वहाँ के निवासी सूर्य और रैटल साँप की पूजा करते हैं। इस प्रकार यह स्पष्ट है कि सर्प की पूजा संसार के विभिन्न भागों में होती रही है परन्तु भारत में सर्प के लिए जितनी श्रद्धा और आदर आज भी है उतना संसार के किसी अन्य देश में नहीं रह गया है।

हिन्दू धर्म में सर्प का दैवी शक्तियों से सम्बन्ध :

किसी भी अन्य पशु से अधिक सर्प ने मानव की भावनाओं और कल्पनाओं को प्रभावित किया है। वैदिक साहित्य में सर्पों का बहुधा उल्लेख हुआ है। ऋग्वेद में अहि का वर्णन है जिसके अर्थ 'सर्प' होते हैं। देवराज इन्द्र ने अहि वृत्रासुर को पराजित किया था। यजुर्वेद तथा अथर्ववेद में भी सर्पों का उल्लेख है। पुराणों में सर्पों से सम्बन्धित अनेकों कथाएँ हैं। पृथ्वी के सम्बन्ध में बतलाया गया है कि वह शेषनाग के

फन पर सधी हुई है। शेषनाग को अत्यन्त पवित्र माना गया है। पुराणों में शेषनाग को विशालकाय नाग जिसके सौ मुख हैं, माना गया है। स्वयं विष्णु भगवान जो प्राणियों का पालन करने वाले हैं, शेषनाग की शय्या पर शयन करते हैं। यह शय्या पुराणों के अनुसार क्षीर सागर में है। कुछ लोगों ने शेष-शय्या की व्याख्या इस प्रकार की है कि क्षीर सागर महेश-लोक की स्थिति बतलाता है जो कि ब्रह्माण्ड के दक्षिण में है। शेषनाग की कुण्डलियाँ जिन पर विष्णु भगवान शयन करते हैं, रुद्रलोक की गुरुत्वाकर्षण शक्ति बतलाती हैं जिसके कारण विष्णु लोक सधा हुआ है; शेषनाग का फन उत्तर में रुद्रलोक की स्थिति बतलाता है।

समुद्र मंथन की कथा एक प्रसिद्ध पौराणिक कथा है। देवताओं और असुरों ने अमृत की प्राप्ति के लिए जब समुद्र मंथन किया तो मेरु पर्वत को मथनी के रूप में तथा शेषनाग को उसमें लपेटकर रस्सी के रूप में प्रयोग किया। देवता शेषनाग की पूँछ की ओर रहे और असुर फन की ओर रहे। इस समुद्र मंथन में चौदह रत्न प्राप्त हुए। ये रत्न थे—विष, लक्ष्मी, पारिजात तथा कामधेनु, ऐरावत, अप्सरा, वारुणी, कौस्तुभ, अमृत, कुम्भ, धनवन्तरी, श्रवा, चन्द्र एवं सूर्य। समुद्र मंथन का जो वर्णन पुराणों में दिया गया है उसका एक अंश प्रस्तुत है :

उत्तरे हिमवत्पाश्वे क्षीरोदोः नाम सागर ।

आरब्धं मन्थनं तत्र दैवेर्दानवपूर्वकैः ॥

मन्थानं मन्दरं कृत्वा नेत्रं कृत्वा तु वासुकिम् ।

मूले कूर्मन्तु संस्थाप्य विष्णोर्वाहुञ्च मन्दरे ॥

एकत्र देवताः सर्वा बलिमुख्यास्तथैकतः ।

मथ्यमाने तदा तस्मिन् क्षीरोदो सागरोत्तमे ॥

शिवजी और सर्पों का साथ अनादि और अनन्त है। भगवान शिव के गले में विषैले सर्पों की माला पड़ी रहती है—ऐसा हिन्दुओं का विश्वास है। जब शिवजी पार्वती जी से विवाह करने गये तब भी उनके गले में सर्पों की माला पड़ी थी। तुलसीदास जी ने रामचरितमानस के बालकाण्ड में इस प्रकार वर्णन किया है :

कहिय कहा कहि जाइ न बाता । यमकै धार किधौ बरियाता ॥

बर बौराह बरद असवारा । ब्याल कपाल विभूषण छारा ॥

[क्या कहें—कुछ कहा नहीं जाता। बारात क्या है वह तो काटने वाले यमराज की सेना है। बर बौराह एक बेल पर बैठा है और उसके शरीर में साँप चिपटे हैं, गले में मुण्डों की माला पड़ी है और शरीर भर में वह भस्म लपेटे हैं।]

तनुछार ब्याल कपाल भूषण नगन जटिल भयंकरा ।

संग भूत प्रेत पिशाच जोगिनि विकट मुख रचनीचरा ॥

जो जियत रहहि बरात देखत पुण्य बड़ तिहिं कर सही ।

देखिहि सो उमा विवाह घर-घर बात अस लरिकन कही ॥

[उनके (शिवजी के) शरीर में राख लगी हुई है, वे सांप और रुण्डमाला के आभूषण पहने हुए हैं, नंगे बदन हैं, जटा बड़ी हुई है, भयंकर प्रेत, पिशाच, जोगिनी और टेढ़े मुंह वाले राक्षस उनके साथ हैं। यह बारात देखकर जो जीते-जागते बने रहे तो समझना उनके किसी बड़े पुण्य ने रक्षा की और वे ही पार्वती जी का विवाह देख सकेंगे, ऐसी बहुत सी बातें लड़कों ने कही।]

शिव स्तुतियों में नागों का उल्लेख अनेकों स्थानों पर हुआ है :

नागेंद्रकुण्डल, नागेंद्रहार, नागेंद्रबलय, नागेंद्रचर्मधर
मृत्यंजय, त्र्यंबक, त्रिपुरांतक, विश्वरूप, विरूपाक्ष
(शिवकावाचम्)

नागेंद्रहाराय, त्रिलोचनाय, भस्मारागाय, महेश्वराय,
नित्याय, शुद्धाय, दिगंबराय, तस्म नकाराय नमः शिवाय ॥
(शिवपंचाक्षर)

गले रुंडमालं, तनौ सर्पजालम्,
महाकालकालं, गणेशाधिपालम् ॥
(शिवाष्टकम्)

चिताभस्मालेपो, गरलमशनं दिक्पटधरो ।
जटाधारी कंठे भुजगपतिहारी पशुपतिः ॥
(शिव महिमा)

सर्प और शिव का साथ अटूट है। कहीं-कहीं शिवजी के मन्दिरों तथा मठों में शिवलिंग पर सर्प की मूर्ति भी गढ़ी होती है। शिवजी के कनिष्ठ पुत्र गणेश जी के चार हाथ बतलाये गये हैं और उनमें से एक में नाग-वाण नामक अस्त्र रहता है। इन्द्र का नागपाश सुप्रसिद्ध है। एक प्रकार के योग में जिसे कुण्डलिनी योग कहते हैं, परम शक्ति कुण्डलिनी को एक कुण्डली मारे नाग का रूप दिया गया है और यह परम शक्ति मेरुदंड में धीरे-धीरे चढ़ती है। पुराणों में लिखा है कि नागों का प्रिय स्थान पाताल लोक है। महर्षि वाल्मीकि रचित रामायण में नागों की मां सुरसा का उल्लेख है जिसने राक्षसी का रूप रख लिया था और जो पवनसुत हनुमान को जीवित निगल जाना चाहती थी परन्तु उसकी हनुमान के आगे एक न चली। रामायण के अन्तिम काण्ड में उल्लेख है कि धरती फट पड़ी और सीता जी धरती माता की गोद में समा गयीं— धरती माता के सिंहासन को नाग उठाये हुए थे।

भगवान् कृष्ण और नाग 'कालिया' की कथा सुप्रसिद्ध है। कालिया नामक भयंकर नाग अपने परिवार सहित तमुना के जल में रहता था और अपने विष से यमुना के जल को दूषित कर देता था जिससे

गौएँ आदि पशु यमुना के जल को पीने से मर जाते थे। जब कालिया का उत्पात बहुत बढ़ गया तो कृष्ण जी ने जो उस समय बाल्यावस्था में थे, लोगों का कष्ट हरने के लिए कालिया-मर्दन किया और कालिया के नथुनों में नकेल डालकर उसके मस्तक पर परम नृत्य किया और उसका अन्त करके संसार के जीवों का त्राण किया। श्रीमद्भागवत में कालिया-मर्दन का सामिक वर्णन है। महाभारत में वर्णन है कि श्रीकृष्ण जी के ज्येष्ठ भ्राता बलदेव जी शेषनाग के अवतार थे। संस्कृत साहित्य में नाग कन्याओं का भी बहुत उल्लेख मिलता है। अर्जुन ने उलूपी नामक नागकन्या से विवाह किया था। नाग कन्याओं के सौन्दर्य तथा कामुकता का वर्णन अत्यन्त बढ़ा-चढ़ाकर किया गया है। जब महाभारत का युद्ध समाप्त हुआ तो पांडव विजयी रहे। तदुपरान्त पाण्डवों ने राज्य अभिमन्यु के पुत्र परीक्षित को सौंप दिया और वे द्रोपदी सहित हिमालय चले गये। राजा परीक्षित को तक्षक नामक नाग ने डस लिया और उनकी मृत्यु हो गयी। राजा जनमेजय ने अपने पिता राजा परीक्षित की मृत्यु का बदला लेने के लिए एक महायज्ञ किया जिसमें उन्होंने सर्पों की आहुति दी और सर्वस्व सर्पों को भेंट चढ़ा दिया। महाकवि कालिदास ने रघुवंश के सोलहवें अध्याय में वर्णन किया है कि जब राजा के मायावी रत्न जो महर्षि अगस्त्य ने दिये थे, खो गये तो राजा ने सोचा कि उन्हें कुमुद नामक नागराज जो नदी के कुण्ड में रहता था, ले गया। राजा ने शक्तिशाली गरुड़ अस्त्र चलाया और उसके वशीभूत हो नागराज अपनी छोटी कन्या सुन्दरी कुमुदवती के साथ बाहर आया। उसने बतलाया कि कुमुदवती खेल में रत्न उठा ले गयी थी। नागराज ने न केवल रत्न राजा को लौटा दिये बल्कि अपनी बहिन का विवाह भी राजा के साथ कर दिया। यह एक मनोरंजक विषय है कि सर्पों का उल्लेख प्रायः उन लोक कथाओं में होता है जिनका सम्बन्ध झीलों, तालाबों तथा झरनों से होता है और पर्वतों तथा वृक्षों से सम्बन्धित लोक कथाओं में इनका उल्लेख प्रायः नहीं होता।

बौद्ध धर्म और सर्प :

बौद्ध धर्म में प्रायः सर्प पूजा का उल्लेख हुआ है। चीनी यात्री ह्वेन सांग ने लिखा है कि राजा उदयन ने एक नाग राजकुमारी से विवाह किया था। इस कथा के अनुसार जब राजा उदयन नागरानी के पास होता था तो नागरानी के सिर से नौ सिर वाला नागफन निकल आता था। महावंश में लिखा है कि जब सम्राट अशोक की पुत्री संघामित्रा बोधि वृक्षकी शाखा को श्रीलंका ले जा रही थी तो नाग उस शाखा को छीन लेना चाहते थे; नागों की मायावी शक्ति पर विजय प्राप्त करने के लिए राजकुमारी संघामित्रा ने गरुड़ का रूप रख लिया। गरुड़ भगवान विष्णु का वाहन भी है और सर्पों का विनाश करने वाला है।

कई स्थानों में महात्मा बुद्ध को सात सिर वाले नाग के फँले हुए फन की छाया में बैठे दिखलाया गया है। अजन्ता की गुफाओं में जो भित्ति चित्र बने हैं उनमें नागराजों का सुन्दर चित्रण किया गया है। अजन्ता की उन्नीसवीं गुफा में नागराज पर सात सिर वाले नाग के फन का छत्र दिखलाया गया है और नागराज के साथ में उसकी रानियां भी हैं। सांची स्तूप के पूर्वी तोरण के केन्द्रीय चाप में उद्भूत है जिसमें वन्य जन्तुओं को बोधि वृक्ष की पूजा करते हुए दिखलाया गया है; इन वन्य जन्तुओं में गरुड़ के पास ही

एक पांच सिर वाला नाग दिखलाया गया है। इसके अतिरिक्त सांची स्तूप में अन्य उद्भूतियाँ भी हैं जिनमें नाग को पांच सिर वाला दिखलाया गया है। सांची में नागराज की एक जीवत्परिमाण मूर्ति भी है जिसमें केवल एक मुख है। कई सिर वाले फन को आदर का प्रतीक माना जाता है। बौद्ध धर्म में अहिंसा महान नियम है और नागों को महात्मा बुद्ध से सम्बद्ध कर नागों के लिए इस बात की और भी अधिक पुष्टि कर दी गई है।

सर्पों का आदर तथा हिन्दू धर्म में उनकी पूजा

सर्पों को भारत के सामाजिक जीवन एवं राजनैतिक क्षेत्र में उच्च स्थान दिया गया। यद्यपि 'आस्तीन का सांप', 'जैसे सांपनाथ वैसे नागनाथ' इत्यादि लोकोक्तियों से यह बात स्पष्ट होती है कि सर्प को भयानक माना गया है, परन्तु उसके प्रति उदासीन न रहकर उसे यथोचित सम्मान दिया गया है। उड़ीसा के कुछ भूतपूर्व महाराजाओं की मुहरों में नाग के फँले फन का चित्रण था। भूतपूर्व ग्वालियर राज्य की मुहर में भी दो नाग और उनके बीच में सूर्य का चित्र था। छोटा नागपुर के भूतपूर्व राजाओं ने अपनी उत्पत्ति नाग से मानी है। ऐसा माना जाता है कि काश्मीर के राजाओं का प्रसिद्ध राजवंश जिसमें ललितादित्य का जन्म हुआ था, कर्कोटक नाग का वंशज था। राजतरंगिणी में जिसमें काश्मीर तथा उसके समीपवर्ती क्षेत्रों के लोगों का वर्णन है, सर्प के लिए किरा शब्द का प्रयोग हुआ है। वाराह मिहिर ने भी किरों का वर्णन किया है। उत्तरी भारत में चिनाव नदी की घाटी में बसे ग्रामों में बहुत से परिवारों में अभी भी यह प्रथा है कि प्रत्येक पुरुष के नाम में वासुकि नाम अवश्य आता है। वासुकि को नागों का राजा माना जाता है। नागराज (किंग कोबरा) अन्य सर्पों का आहार कर उनकी संख्या पर नियन्त्रण रखते हैं और इस प्रकार जैविक संतुलन बनाये रखते हैं। इसी प्रकार राजसांप (बैन्डिड क्रेट—बंगारस फैसिआटस) भी अन्य सर्पों को खा जाते हैं और मानव तथा मवेशियों को कोई हानि नहीं पहुँचाते हैं। मध्य प्रदेश के कुछ ग्रामों में, विशेषकर छत्तीसगढ़ में तथा उसके आसपास किसान राजसांप को अत्यन्त आदर की दृष्टि से देखते हैं, उसको मारते नहीं और उसे अहिराज कहते हैं। साधु विशेषकर शैव और अघोरी साधु तथा कापालिक सिद्धि प्राप्त करने के लिए अथवा भक्ति-भाव से सर्पों को पालते भी हैं। अघोरी साधु यज्ञ में सर्पों की आहुति भी देते हैं। वे विशेषकर मणि वाले नाग (यद्यपि इसमें कोई वैज्ञानिक तथ्य नहीं है कि नाग के मणि होती है), सींग वाले सांप (हार्ड एड्स:—बीटिस काडालिस—एक सींग वाला; बीटिस कन्यूटस—दो सींग वाला), अजगर, इत्यादि पालते हैं। वाराणसी में गलियों में प्रायः कालभैरव का रूप रखे और गले में जीवित अजगर डाले भिखारी देखने को मिलते हैं। अन्धा सांप (टाइपलाप्स ब्रेमीनस), अजगर (पाइथन माल्यूरस), धामन (ट्र्यास म्यूकोसस), सीता-की-लात (नैट्रिक्स स्टोलेटा), मनडोल (ईरिक्स जॉनाई) पाले जा सकते हैं और ये कोई हानि नहीं पहुँचाते क्योंकि इनमें विष नहीं होता है।

हिन्दुओं में सर्पों की पूजा की भी प्रथा है। मानव के इतिहास में सर्पों की पूजा का एक विशेष स्थान रहा है। काश्मीर तथा पंजाब में नागों जैसे शेषनाग, वासुकिनाग, तख्तनाग, प्रीतमनाग, कर्कोटक नाग,

संतान नाग, इत्यादि के अनेकों मन्दिर हैं जिनमें नागों की मूर्तियां मानव रूप में हैं और जिनकी लोग श्रद्धापूर्वक पूजा करते हैं। इन नागों की मूर्तियों में विशेषता यह है कि प्रत्येक के ऊपर तीन सिर वाले सर्प के फन का छत्र है। कुण्डली मारे सर्पों की मूर्तियाँ भारत में सर्वत्र पाई जाती हैं। गुजरात में अधिकतर ग्रामों में सर्प-मन्दिर (सरमेलिया) मिलेंगे। दक्षिण भारत में सर्पों की पूजा बहुत प्रचलित है। मैसूर राज्य में लोग पीपल के वृक्ष के नीचे कुण्डली मारे हुए नागों की स्थापना करते हैं और सन्तान, धन, वर्षा अथवा दीर्घायु प्राप्त करने की इच्छा से उनकी उपासना करते हैं। पाखण्डी हिन्दुओं में विश्वास है कि सर्प पवन पीते हैं परन्तु तो भी दुर्बल नहीं होते:

सर्पाः पिबन्ति पवनं न च दुर्बलास्ते ।

नाग (नाजा नाजा) विषालु तो होता ही है, अतएव उसको सन्तुष्ट एवं प्रसन्न रखने के लिए अथवा उसको दूर रखने के लिए उसकी प्रार्थना करते हैं। विष्णु भगवान की स्तुति में उल्लेख है:

अनन्तं वासुकिं शेषं पद्मनाभं च कंबलम् ।
शंखपालं धृतराष्ट्रं तक्षकं कालियं तथा ।
एतानि नव नामानि, नागानां च महात्मनाम् ।
सायंकाले पठेन्नित्यं, प्रातःकाले विशेषतः ।
तस्य विषभयं नास्ति सर्वत्र विजयी भवेत् ।

[जो नौ नागों, अनन्त, वासुकी, शेष, पद्मनाभ, कंबल, शंखपाल, धृतराष्ट्र, तक्षक और कालिया के महात्म्य का पाठ करता है, विशेषकर नित्य संध्याकाल तथा प्रातःकाल के समय, उसे विष का भय नहीं हो सकता और सर्वत्र विजयी होगा।]

कर्कोटक नाग की स्तुति में कहा गया है—

कर्कोटकस्य नागस्य दमयन्त्या नलस्य च,
ऋतुपर्णस्य राजषेः कीर्तनं कीलनाशनम् ।

[जो कर्कोटक नाग, नल और दमयन्ती, राजा तिरुपर्ण को याद करता है और उनकी प्रशंसा का गान करता है उस पर कलियुग का प्रभाव नहीं पड़ सकता।]

सर्पों की पूजा उतनी ही प्राचीन है जितनी प्राचीन सूर्य की पूजा है। सर्प को अनादि काल से पूज्य समझा जाता रहा है। फणिधर को अत्यन्त प्राचीन काल से देवक के रूप में पवित्र माना जाता रहा है। सूर्य और नागदेवता की साथ-साथ पूजा अवश्य किसी एक ही स्थान से प्रारम्भ हुई होगी। वास्तव में हिन्दू पुराणों का नाग एक साधारण सर्प नहीं है बल्कि नाग देवता है, दिव्य है तथा आराध्य है। नागदेवता सदैव अनेकों सिर वाले होते हैं और विशेषता यह है कि सिरों की संख्या सदैव विषम होती है

अर्थात् सिर तीन हो सकते हैं, पाँच हो सकते हैं, सात हो सकते हैं, इत्यादि। जो आदर नाग को प्राप्त है वह अन्य सर्पों को प्राप्त नहीं है।

महाभारत के उद्योग पर्व में असुर नामक नागराज का उल्लेख है। विष्णु पुराण में लिखा है कि अयोध्या में एक सूर्यवंशी राजा हुआ था जिसका नाम अहिराज था। भारत की लोक कथायें नागवंशी राजाओं तथा योद्धाओं के कार्यों से भरी पड़ी हैं और यह सम्भव हो सकता है कि नागपंचमी का पर्व इन्हीं नाग राजाओं के सम्मान में मनाया जाता हो। ऐसा कहा जाता है कि नाग राजे चतुर निर्माणकर्ता थे और उन्होंने बड़े-बड़े नगर जैसे प्रागज्योतिष, तक्षशिला, मगध, मथुरा, आदि बसाये।

भारत में बहुत से लोग सर्प विशेषकर नाग को नहीं मारते। केरल में बहुत से लोग अपने मकानों में आंगन का एक भाग सर्प की पूजा के लिए नियत कर लेते हैं। ऐसा विश्वास किया जाता है कि सर्प उस स्थान पर आता है और जो कुछ उसे भेंट चढ़ाया जाता है, खा जाता है। प्राचीन काल में लोग सोने-चांदी के आभूषण तथा सिक्के, गगरों या मटकों में भरकर पृथ्वी में गड़ा देते थे और ऐसा विश्वास किया जाता था कि सर्प जिसको परिवार का सर्प मानते थे, उस धन की रखवाली करता रहेगा।

नागपंचमी और अनन्त चतुर्दशी

नागपंचमी और अनन्त चतुर्दशी दो ऐसे पर्व हैं जब घर-घर में नागों की पूजा होती है। नागपंचमी श्रावण मास के शुक्ल पक्ष की पंचमी को मनाई जाती है और अनन्त चतुर्दशी आश्विनी मास के शुक्ल पक्ष की चतुर्दशी को मनाई जाती है। इन दोनों पर्वों में नागपंचमी अधिक मनाई जाती है। नागपंचमी की उत्पत्ति कैसे हुई, इस सम्बन्ध में एक लोक कथा है जो इस प्रकार है:—

मानिकपुर नाम का एक नगर था। उसमें एक गौड़ ब्राह्मण रहता था। उसको नागपंचमी का महात्म्य ज्ञात नहीं था। उसको यह पता नहीं था कि नागपंचमी के दिन न तो हल चलाना चाहिये, न गड्ढा खोदना चाहिये, न पुष्प चुनना चाहिये, न अग्नि जलाना चाहिये और न कुछ पकाना चाहिये। वह अपने खेत को नित्य प्रति की भाँति जोतने गया। खेत में एक स्थान पर नागिन का बिल था जिसमें उसके बच्चे थे। हल चलाने से सब बच्चे मर गए। नागिन जो बाहर गई थी, जब लौटकर आई तो उसने देखा कि उसके सब बच्चे मरे पड़े हैं। यह दृश्य देखकर नागिन क्रोध से जल उठी और जिसने उसके बच्चों को मार डाला था उसको ढूँढ़ने के लिए चल दी। ढूँढ़ते-ढूँढ़ते वह उस ब्राह्मण के घर पहुँची और जैसे ही उसने हल में अपने बच्चों का रक्त लगा देखा, उसको निश्चय हो गया कि उसी ब्राह्मण ने उसके बच्चों को मार डाला था। अतएव, बदला लेने के लिए उसने ब्राह्मण को काट लिया और उसके घर के सब लोगों को भी काट लिया। जब उसने ब्राह्मण तथा उसके परिवार को काटा तो वे सभी सो रहे थे। ब्राह्मण के पूरे परिवार को समाप्त करने के उद्देश्य से, वह ब्राह्मण की विवाहित पुत्री जो दूसरे गाँव में थी, को काटने गई। परन्तु ब्राह्मण की उस पुत्री ने दीवार पर नागों के चित्र बनाये थे और उनकी विधिवत् पूजा करने तथा भेंट चढ़ाने

के उपरान्त, रात्रि में धूप, इत्यादि जलाई थी और दीपक आदि जलाये थे। यह देखकर नागिन ने वहाँ रखी हुई वस्तुओं का उपभोग किया और प्रसन्न होकर बोली कि 'हे पुत्री! तेरे पिता ने आज हल चलाते समय मेरे बच्चों को मार डाला। तेरे मायके में सबको मार डालने के पश्चात् मैं तुम्हें भी मारने आई थी परन्तु चुंकि तूने मुझे याद रखा और मेरी पूजा की, इसलिए मैं प्रसन्न हूँ और तुम्हें नहीं काटूंगी।' यह सुनकर पुत्री ने कहा कि 'तूने मेरे मायके में सबको मार डाला है; अब मुझे कोई ऐसी युक्ति बतलाओ कि जिससे वे पुनर्जीवित हो सकें।' इस पर नागिन ने उत्तर दिया कि 'तुम इस अमृत को लो और इसे उनके शरीर पर छिड़क देना और वे पुनः जीवित हो उठेंगे और ब्राह्मण की पुत्री को अमृत दिया। जब प्रातःकाल हुआ और ब्राह्मण अपने घर के बाहर नहीं निकला तो लोग एक दूसरे से पूछने लगे कि 'क्या बात है, आज ब्राह्मण अभी तक नहीं उठा।' जब गाँव वालों ने उसके घर का द्वार खोला तो घर के सब लोगों को मरा पड़ा पाया। इतने में ब्राह्मण की पुत्री वहाँ पहुँच गई और नागिन ने जो अमृत दिया था, उसे उनके रूपर छिड़क कर उन सबको जीवित कर दिया। तब उस पुत्री ने अपने पिता को सम्पूर्ण घटना सविस्तार बतलाई और कहा कि 'आज से जब-जब श्रावण आये, आपको श्रावण के शुक्ल पक्ष की पंचमी को नागों की विधिवत् पूजा करनी चाहिये और रात्रि में उनके सामने धूप-दीप और भोजन, सामग्री रखना चाहिये और उस दिन न तो गड्ढा खोदेंगे और न उस दिन किसी जीव को मारेंगे।'।

इस कथा को नागपंचमी के त्यौहार पर लोग दुहराते हैं और श्रद्धापूर्वक ध्यान से सुनते हैं। यह कथा कितनी प्राचीन है यह कहना कठिन है। श्रावण मास के शुक्ल पक्ष की पंचमी को प्रतिवर्ष हिन्दू स्त्रियाँ नागपंचमी के पर्व को श्रद्धापूर्वक मनाती हैं। गांव में इस पर्व को अत्यन्त महत्त्वपूर्ण मानते हैं। नागपंचमी के दिन लोग नागों को दूध पिलाते हैं तथा पुष्प, फल, इत्यादि भी चढ़ाते हैं। यदि नाग न मिले तो बिलों में डाल देते हैं और कहते हैं कि नाग आकर उसे पी जायेगा। इस दिन मनसा देवी की पूजा की जाती है। मनसा देवी को पौराणिक नागराज वासुकि की बहिन मानते हैं। महाभारत में लिखा है कि मनसा का विवाह एक ऋषि के साथ हुआ था और इस विवाह से मनसा के एक पुत्र उत्पन्न हुआ जिसका नाम अष्टिक था। जब जनमेजय ने अपने पिता परीक्षित की मृत्यु का बदला लेने के लिए सर्प-यज्ञ किया था तो अष्टिक ने ही सर्पों को पूर्ण विनाश से बचा लिया था। मनसा देवी को विषहारी भी कहते हैं और ऐसा विश्वास किया जाता है कि वह साँप के काटने से रक्षा करती है। नागपंचमी के दिन सपेरों की बन आती है। लोग सपेरों को बुलाकर उनकी पिटारी में रखे नागों का दर्शन करते हैं, नृत्य देखते हैं और नागों को दूध पिलाते हैं तथा सपेरों को पैसे, आटा, इत्यादि देते हैं। सपेरे नागों को बड़े गर्व से रखते हैं। जो सपेरा नाग नहीं रखता वह श्रेष्ठ सपेरा नहीं माना जाता है। वे नाग वन, इत्यादि में पकड़ते हैं और नागदेवता को वचन देते हैं कि पकड़े हुए नाग को अमुक तिथि पर छोड़ देंगे।

भारत में भिन्न-भिन्न स्थानों में नागपंचमी भिन्न-भिन्न प्रकार से मनाई जाती है। उत्तर प्रदेश के बहुत से स्थानों में हिन्दू परिवार का कर्त्ता स्नान करने के उपरान्त अपने शयनकक्ष की दीवार पर दो नागकृतियाँ बनाता है और उनकी विधिवत् पूजा करने के उपरान्त ब्राह्मणों को दान-दक्षिणा देता है।

कहीं-कहीं लोग आठ नाग देवताओं की पूजा करते हैं। कन्यायें जल में नागों के लिए पुष्प, दूध, इत्यादि की भेंट चढ़ाती हैं। कुछ लोग भेंट के रूप में पैसे भी चढ़ाते हैं। उत्तर प्रदेश के पूर्वी जिलों में ऐसी प्रथा है कि नागपंचमी के दिन कन्यायें गुड़ियां बनाती हैं और उनको जल में बहा देती हैं और तब बालक इन बहाई हुई गुड़ियों को लम्बी लकड़ी से पीटते हैं। मिर्जापुर तथा बांदा जिलों के कोल आदिवासी नागपंचमी का पर्व श्रावण मास के शुक्ल पक्ष की एकादशी को मनाते हैं और नागदेवता की पूजा करते हैं। उत्तर प्रदेश के कुछ भागों में नागपंचमी का पर्व भाद्रपद मास में मनाया जाता है। गढ़वाल में धरती को गोबर से लीप लेते हैं और फिर घिसे हुए चन्दन अथवा कुमकुम से सांपों की आकृतियाँ खींच लेते हैं। इन आकृतियों पर चावल की खील चढ़ाते हैं और आरती उतारते हैं। प्रातःकाल तथा संध्याकाल में भोजन तथा फल भी चढ़ाये जाते हैं। रात्रि के समय नाग देवता की प्रशंसा में लोग कथायें कहते हैं और सुनते हैं। पंजाब में भी नागपंचमी का त्यौहार धूमधाम से मनाया जाता है। इस दिन घर की दीवार पर कालिख से नागदेवता का एक चित्र बनाया जाता है और उसकी पूजा की जाती है। ऐसा विश्वास किया जाता है कि नागदेवता घर की रक्षा करते हैं और सर्पों को घर में नहीं आने देते।

अनन्त चतुर्दशी भी नागों से सम्बन्धित एक प्रमुख हिन्दू पर्व है। इस दिन हिन्दू स्त्रियाँ दीवार पर गोबर या चूने से स्थान पोतकर कालिख अथवा गेरू से नागदेवता का चित्र बनाती हैं। कहीं-कहीं मिट्टी का सिर बनाकर दीवार में पूजा हेतु स्थापित कर देते हैं। बच्चे, युवक और वृद्ध पुरुष बाहु में सूत का बना हुआ रंगीन अनन्ता बांधते हैं जो नाग का प्रतीक है। कहते हैं कि अनन्त चतुर्दशी अनन्तनाग, जो नागराज माने जाते हैं, की पूजा के लिए मनाई जाती है।

नागों से सम्बन्धित अन्य पर्व

बिहार में गोबर पांचे नाम का एक त्यौहार मनाया जाता है। यह श्रावण मास के कृष्ण पक्ष की पंचमी को मनाया जाता है और इस दिन नागों की पूजा की जाती है। पटना में इसे गोबर पांचे कहते हैं और भागलपुर जिले के दक्षिणी भाग में इसे बेहरा पांचे कहते हैं। नेपाल में नागों से सम्बन्धित त्यौहार श्रावण मास के कृष्ण पक्ष की पंचमी को मनाया जाता है। वहाँ यह त्यौहार छंगु नारायण के मन्दिर में मनाया जाता है। ऐसा कहा जाता है कि इस मन्दिर में जो गरुड़ की मूर्ति स्थापित है उसके शरीर से इस तिथि को निरन्तर स्वेद निकलता रहता है और पुजारी मूर्ति को रुमाल से पोंछता रहता है। वहाँ के लोगों का विश्वास है कि इस रुमाल का प्रत्येक धागा सांप-काटे का अचूक उपचार है। इसके अतिरिक्त उस दिन लोग दो धाराओं के संगम पर स्नान करते हैं और तत्पश्चात् चावल, दूध, पानी, चावल का आटा, पुष्प, धी, मसाले, चन्दन और धूप चढ़ाते हैं और नागराज से प्रार्थना करते रहते हैं कि अच्छी फसल हो।

भारतीय सभ्यता की एकता का प्रतीक नाग

भारत के सभी भागों में सर्प, विशेषकर नाग को पवित्र माना जाता रहा है। भारत में इसे धर्म, रहस्यवाद, लोक कथाओं, तेज तथा सभ्यता का प्रतीक माना गया है। यह सम्भव है कि उसे यह मान्यता

तथा आदर उन लोगों ने दिया जो भारत के निवासी थे और जो लोग बाहर से यहाँ आये और यहीं बस गये, उन लोगों ने भी इस मान्यता तथा आदर को स्वीकार कर लिया और वे भी सर्प की पूजा करने लगे। इस प्रकार नाग केवल साधारण सर्प न रहा बल्कि यहाँ की सभ्यता का अंग बन गया और दैवीशक्ति के रूप में उसे उपास्य का पद मिल गया। यह पद पीढ़ियों से चला आ रहा है और लोगों की श्रद्धा अटूट बनी हुई है। इस प्रकार अत्यन्त प्राचीन काल से नाग एवं नागपूजा के द्वारा सभ्यता की एकता बनी रही है। प्राचीन काल में छत्रपति महाराजाओं ने, विशेषकर सूर्यवंशी महाराजाओं ने अपने राजसिंहासन के छत्रों को नाग-रूप दिया। नाग की तुलना उस मानव-बाहु से की गई है जो अभयदान मुद्रा में हो। ऐसी अवस्था में सर्प के शरीर की तुलना बाहु से, फेन की तुलना हथेली से और मुँह (जिनकी संख्या नागराजों में अधिकतर पाँच मानते हैं) की तुलना उँगलियों से की गई है।

सर्पों का आदर विज्ञान की कसौटी पर

सर्पों को जो आदर मानव समाज ने दिया है वह विज्ञान की कसौटी पर खरा उतरता है। सर्प मानव समाज का जितना भला करते हैं उसको देखते हुए तो यह आदर कम ही प्रतीत होता है। ये कृषि के शत्रुओं जैसे चूहे, खरगोश, गिलहरी इत्यादि को चट कर जाते हैं और इस प्रकार इनसे होने वाली हानि को कम करते हैं। डाक्टर कुन्हाट ने सन् १९१९ ई० में अनुमान लगाया था कि भारत में गत बीस वर्षों में चूहों द्वारा होने वाली हानि का मूल्य १२४१ करोड़ रुपये था और सम्भवतः भारत में चूहों की आबादी लगभग ८,००,००,००,००० थी। इसके अतिरिक्त चूहे अनेकों रोग फैलाते हैं जिनमें से प्लेग या ताऊन अधिक भयंकर तथा प्राणघातक है। सन् १८९८ ई० से सन् १९४८ तक औसत २,४७,०१५ मृत्यु प्रतिवर्ष प्लेग के कारण हुईं। चूहे, खरगोश, गिलहरी आदि फसल को बहुत अधिक हानि पहुंचाते हैं। अनाज के गोदामों में, खलिहानों में और दुकानों में चूहे कुछ कम उपद्रव नहीं करते। वे अनाज चट कर जाते हैं और बोरों को काट डालते हैं। घरों में वे बिल बना लेते हैं और अवसर मिलने पर कपड़े काट डालते हैं; लकड़ी का सामान कुतर डालते हैं और भोजन, अनाज, आटा इत्यादि हड़प कर जाते हैं। उनका मल-मूत्र विषैला होता है। मानव जाति के ऐसे शत्रु चूहे को चट कर जाने वाला क्या मानव का पूज्य नहीं होना चाहिए; क्या मानव जाति को उसे आदर की दृष्टि से नहीं देखना चाहिए? कृषि के विकास एवं अन्न के अधिक उत्पादन के लिए आवश्यक है कि चूहों की आबादी कम की जाये और उनकी संख्या में नियन्त्रण रखा जाये। आजकल चूहेमार रसायनों का चूहों को मारने के लिए प्रयोग होता है परन्तु ये सभी रसायन मनुष्य तथा उसके मवेशियों के लिए हानिकर हैं। इस प्रकार के रसायनों में बहुधा आर्सेनिक के संयोगों का प्रयोग होता है जो मानव के लिए घातक विषालु हैं। सायनोजेन जैसी गैसों जिनका प्रयोग भी चूहों को बिलों के अन्दर मारने के लिए होता है, मानव जीवन के लिए भयंकर विष है। इसमें कोई सन्देह नहीं कि इन प्राणघातक रसायनों के प्रयोग से वातावरण दूषित होता है और सदैव इस बात की आशंका बनी रहती है कि कहीं विष का प्रभाव भोजन में न पहुंच जाये। इन रसायनों को बनाने में काफी धन तथा समय लगता है। इसके अतिरिक्त चूहे धीरे-धीरे विष के अभ्यस्त हो जाते हैं और तब विष का प्रभाव उन पर

या तो कम पड़ता है अथवा नहीं पड़ता है। इसके विपरीत प्रकृति ने चूहों के नाशक के रूप में सर्प, बिल्ली, उल्लू इत्यादि को उत्पन्न किया है जो चूहों को खा जाते हैं और उसकी संख्या को मनमाना बढ़ने नहीं देते। इस प्रकार प्रकृति जैविक सन्तुलन बनाये रखती है। इस नियन्त्रण में मानव को कुछ भी व्यय नहीं करना पड़ता है। नाग (नाजा नाजा) को चूहों का आहार विशेष प्रिय है। चूहों और मेंढकों को खाने के लिए यह उद्यानों और घरों तक में चला आता है। नाग घातक विषालु होता है और इसके काटने से मृत्यु भी काफी संख्या में होती है परन्तु मनुष्य पर वह स्वयं आक्रमण नहीं करता और दब जाने पर अथवा मनुष्य द्वारा पीछा किये पर काट खाता है। अतएव यदि मनुष्य इसको न छेड़े तो इसके काट खाने का प्रश्न ही नहीं उठता। इसी प्रकार पृदाकुओं (वाइपर्स) को भी चूहों का आहार प्रिय है। भारत में सर्पों की लगभग २१६ जातियाँ (स्पीसीज़) पाई जाती हैं जिनमें से लगभग ५२ जातियाँ विषालु हैं। अविषालु जातियों में धामन और अजगर मुख्य हैं। चूहे इन दोनों का ही प्रिय आहार हैं। धामन को अंग्रेजी में रैट-स्नेक कहते हैं। यद्यपि यह सत्य है कि विषालु सर्प मानव जीवन के लिए घातक हैं और उनके काटने से मृत्यु भी होती है परन्तु इनकी संख्या प्लेग से मृत्यु होने की संख्या से काफी कम है। थोड़ी सी सावधानी से सांप के काँटने की संख्या में कमी हो सकती है। वनों के कट जाने से और नगर इत्यादि बस जाने से सर्पों की संख्या में बहुत कमी हो गयी है। यह बात ध्यान देने योग्य है कि सर्पों की संख्या में कमी अथवा उनके लोप हो जाने से कृन्तकों जैसे चूहों की संख्या में तेजी से वृद्धि होगी और कृषि को हानि होने के साथ-साथ मानव का जीवित रहना दूभर हो जायेगा।

MEMBERSHIP

Rs. 150.00

Rs. 20.00 Entrance Fee + Rs. 12.00 Annual Fee

50% of Ordinary Members

50% of Ordinary Members

50% of Ordinary Members. No Entrance Fee

Ordinary Members. Rs. 10.00 Entrance Fee

50% of the Ordinary Members. Rs. 10.00 Entrance Fee with 5 years. No Entrance Fee

APPLICATION FORM

The Wild Life Preservation Society of India

I, of

hereby apply to be admitted as a Life/Ordinary/Professional/Educational/Family/Affiliated/
Institutional/Student Member of the Wild Life Preservation Society of India.

My interests are

Name

Designation

Address

Date of Birth

MEMBERSHIP

- | | |
|---|--|
| 1. Life : | Rs. 150.00. |
| 2. Ordinary | Rs. 20.00 Entrance Fee+Rs. 12.00 subscription per annum. |
| 3. Professional :
(Foresters, Agricultural Workers,
Soil Conservationists, Wild Life
Managers) | } 50% of Ordinary Members. |
| 4. Educational :
(Teachers and Trainers) | |
| 5. Student : | 50% of Ordinary Members. |
| 6. Family :
(Applies to 2, 3 and 4 above) | 50% of Ordinary Members. No Entrance Fee. |
| 7. Affiliated :
(Other similar bodies) | Twice Ordinary Members. No Entrance Fee. |
| 8. Institutional
(Messes, Units, Schools, Colleges
etc.) | } Five times the Ordinary Members, i.e., Rs. 60.00
with 5 votes. No Entrance Fee. |

The Wild Life Preservation Society of India

To Members.

There are many people who have the interests of Wild Life Conservation at heart but in these difficult days are not able to do as much for the cause during their lives as they otherwise might.

It is, therefore, considered that a form of Bequest might appeal. Such a form is, therefore, now inserted in our Journal and the attention of members is respectfully invited.

Any sums received will be wisely expended in measures calculated to conserve wild life.

FORM OF BEQUEST

I give and bequeath the sum of unto the Wild Life Preservation Society of India, Dehra Dun and I declare that the receipt of the Honorary Secretary and Treasurer of the said Society shall be sufficient discharge for the said sum.

Signed.....

Address.....

Witness

Name

Address

Occupation.....

The President & Members,
Executive Committee,
Wild Life Preservation Society of India,
Dehra Dun.

Gentlemen,

We have audited the Accounts of the Society for the year ending 31st March, 1966 and as mentioned in our certificate at the foot of the Balance Sheet as on 31st March 1966, we have the following report for your information:—

2. The working of the year shows a deficit of Rs. 758/- (after adjusting the loss of Rs. 1,235/-, from 'CHEETAL PUBLICATION' as compared with Rs. 1,751/- (after adjusting the loss of Rs. 1,548/-) of the previous year. Thus there is a Net Decrease of about Rs. 990/-, which is chiefly due to the following reasons:—

Increase in the following Income:

Pads & Covers, Greeting Cards, Nature Games,

Ties and buttons etc.	...	...	(about) Rs. 500	
Miscellaneous:	...	...	Rs. 170	
Interest on Fixed Deposits:	...	...	Rs. 270	Rs. 940

Add : Decrease in Loss on 'Cheetal Publication'

about Rs. 300

„ „ „ Written Off :	...	Rs. 233	Rs. 530
			Rs. 1470

Less: Net Decrease in Office Expenditure: about Rs. 230

„ Decrease in Subscription Income: „ Rs. 250 Rs. 480

NET Decrease in Deficit Rs. 990

3. **Finances:** The Cash and Bank Balances on 31.3.1966 are Rs. 13,187.12 as compared with Rs. 15,944/- on 31.3.1965. The Decrease of about Rs. 2,750/- is due to Increase in Bills and Subscriptions Outstandings and Capital Expenditure on Books and Camera less net increase in Society Fund.

4. The Subscription outstandings are increasing. In our opinion subscriptions due over a year should be written off if there are no chances of their recovery. Similarly subscriptions recoverable from Members of Assam & Bihar Regional Branches be reversed and separately shown, as accounts of Bihar & Assam Regional Branches are not being received for the last two years.

5. **Accounts:** The position of the accounts remain the same as reported last year. With the help of the Hony. Treasurer, it took considerable time to reconcile the various accounts for the purpose of final Statements, as no Ledger is being maintained and Monthly Bank Account is not being reconciled due to frequent changes of part time Office Clerk. We are assured that the Accounts will show better position in future as an experienced retired Assistant has taken over the job regularly.

Yours faithfully

For M/s. P.N. Bahri & Co.
Chartered Accountants;
P.N. BAHRI C.A. Partner

WILD LIFE PRESERVATION

BALANCE SHEET AS ON

Prev. Year	LIABILITIES	Rs.	P.	Rs.	P.
	Unpaid Expenses:				
	Press Cutting Bureau	...	74—62		
	English Book Depot, for Books	...	151—45		
	Due to Assam Regional Branch	...	124—42		
	Goyal Studio for Photo General Meeting	...	127—50		
	Due to Bihar Regional Branch	...	31—00		
	Audit Fee and Accountancy	...	150—00		
	Bombay Natural History Society	...	4—55		
	Photographs 'CHEETAL'	...	6—12		
729	Conservancy Tax	...	54—00	723—66	
	Advance Subscriptions:				
	Ordinary Members	...	58—75		
	Institutional Members	...	60—00		
	Educational Members	...	60—00		
	Professional Members	...	72—00		
213	Student Members	...	6—00	256—75	
408	Advance Subscription for 'CHEETAL'			25—80	
250	Donation from H.H. Nabha for I.U.C.N. and N.R.				
	H.H. Nabha for Patron Members:				
	Advance Deposit: Last Balance	...	2,438—94		
2,439	Less: Transfer to Society Fund for Life Membership	...	150—00	2,288—94	
1,071	Corbett Prize Fund: Last Balance	...		1,071—22	
2,000	Himalayan Wild Life Research Project:				
	(Sir Dorab Jee Tata Trust): Last Balance	...		2,000—00	
	Society Fund: As per last Balance Sheet	...	14,668—85		
	Add Donations:				
	H.H. Nabha for Furniture	312—44			
	Life Members' Fees	2400—00			
	Add: Transfer from H.H. Nabha for Patron Members	150—00	2550—00		
	Other Donations		23—00		
	Admission Fee from New Members		390—00	3,275—44	
	Estimated Value of Donations in Kind:				
	13 Photos from H.H. Nabha and M. Krishnan (Contra)		491—65		
	Library Books from Dr. T.H. Bassett (Canada) (Contra)		220—00		
	Other Library Books (Contra)		293—00	1,004—65	
				18,948—94	
14,669	Less: Deficit as per Income & Expenditure Account (Annexed)	...	758—06	18,190—88	
21,779	TOTAL	...		24,557—25	

SOCIETY OF INDIA, DEHRA DUN

31st MARCH 1966

Prev. Year	ASSETS	Rs.	P.	Rs.	P.
	Office Furniture and Equipments				
	As per last Balance Sheet	889	—00		
	Add: Donations from H.H. Nabha (Contra)	312	—44		
		1,201	—44		
889	Less: Depreciation for the Year	120	—44	1,081	—00
	Library Books: Last Balance	478	—70		
	Add: Purchased during the Year	233	—76	712	—46
	Less: Depreciation for the Year		142—46	5	0—00
			220—00		
479	Add: Donations from Dr. T.H. Bassett (Contra)		293—00	1,083	—00
	Other Donations (Contra)				
—	Cost of Camera Purchased from Donations for Himalayan Wild Life Research Project			1,764	—95
—	Cost of 13 Photos: (Donations) Contra			49	—65
	Outstandings:				
	Bills for Pads and Covers	288	—00		
	Bills for Greeting Cards	181	—50		
	Bills for Ties	336	—00		
	Bills for Buttons	43	—68		
	Bills for Advertisements	225	—00	1,074	—18
	Subscriptions:				
	CHEETAL	807	—55		
	Ordinary Members	2,344	—58		
	Institutional Members	300	—00		
	Affiliates Members	300	—00		
	Educational Members	110	—00		
	Professional Members	294	—00		
2,530	Student Members	12	—00	4,168	—13
	Security Deposits:				
	Electric		40—00		
60	Water		20—00	60	—00
	Stock in Hand on 31-3-1966:				
	CHEETAL Copies in Hand		840—50		
	Pads and Covers		105—19		
	Greeting Cards		186—86		
	Nature Games		346—50		
	Ties		140—00		
1,877	Buttons		28—17	1,647	—22
	Cash and Other Balances:				
	On Fixed Deposit with Central Bank Ltd., Dehra Dun	10,152	—00		
	On Current Account with Central Bank of India Ltd., Dehra Dun	2,958	—71		
	Postage in hand		5—70		
	Due from Ex-Clerk (Since refunded)		35—66		
15,944	Due from Mr. Hari Dang (Since refunded)		35—05	13,187	—12
21,779	TOTAL			24,557	—25

As per our separate report of even date addressed to the Members Executive Committee.

For M/s P.N. Bahri & Co.
Chartered Accountants.
(P.N. Bahri) Partner,
Chartered Accountant.

WILD LIFE PRESERVATION

INCOME & EXPENDITURE ACCOUNT

Prev. Year	EXPENDITURE	Rs.	P.	Rs.	P.
1,165	To Salaries to Staff	...	1,077—93		
—	„ Hony. Secretary Conveyance Allowance (From 1-1-1965 to 28-2-1966)	...	700—00		
738	„ Postage and Telegrams	...	223—87		
336	„ Printing and Stationery	...	485—87		
952	„ Rent and Taxes	...	812—00		
201	„ Electric, Water and Conservancy	...	153—50		
500	„ Entertainment: General Meeting	315—00			
	„ I.U.C.N. Delegation	266—00			
	„ Other Sundry	38—98	619—98		
—	„ Travelling Expenses for I.U.C.N. Meeting	...	104—40		
31	„ Contribution to Bihar Regional	...	—		
—	„ Subscription to Bombay Natural History Society	...	31—65		
68	„ Bank Charges	...	98—10		
150	„ Audit Fee and Accountancy Charges	...	200—00	4,507—30	
4,141					
	„ Miscellaneous Expenses:				
	50 Telegraphic Address Renewal	...	50—00		
	— Telephone and Trunk Calls	...	7—90		
	16 Packing Charges	...	18—55		
	34 Other Expenses	...	15—08		
132	32 Repairs to Typewriter	...	— —	91—53	
	Free Issue to Members:				
101	„ Nature Games	...		12—60	
	„ 'CHEETAL' Publications:				
1,548	Less: As per Annexure (A) attached	...		1,235—61	
	„ Amounts Written Off:				
99	Depreciation on Furniture	...	120—44		
	Depreciation on Library Books	...	142—46	262—90	
383	Snakes and Ladders	...		— —	
6	Old Tie	...		— —	
6,410	TOTAL	...		6,109—94	

15, Rajpur Road, Dehra Dun,
Dated June 10, 1966.

As per our report on the Balance Sheet annexed.

SOCIETY OF INDIA, DEHRA DUN

FOR THE YEAR ENDING 31st MARCH 1966

Prev. Year	INCOME	Rs.	P.	Rs.	P.
	By Subscription Demand for the Year:				
	Ordinary Members ...	2,028	—00		
	Institutional Members ...	300	—00		
	Affiliated Members ...	240	—00		
	Professional Members ...	202	—00		
	Student Members ...	790	—00		
3,989	Educational Members ...	186	—00	3,746	—00
	„ Income From: (As per Appendix 'B' Attached)				
	Pads and Covers ...	284	—22		
	Greeting Cards ...	442	—16		
	Nature Games ...	5	—40		
	Tie ...	84	—00		
321	Buttons ...	00	—75	816	—53
	„ Miscellaneous Income:				
	Excess Charged in Photos of Last General Meeting	180	—74		
	Life Members Credit Balances ...	9	—00		
	Balance of Donation from H.H. Nabha for I.U.C.N. and R.R. 250—00				
	Less: Subscription paid during the Year 243—00	7	—00		
	Bank Charges ...	18	—75		
134	Postage and Packing ...	89	—25	304	—74
215	„ Interest on Fixed Deposits:			484	—61
	„ Deficit:				
1,751	Carried to Society Fund Account ...			758	—06
6,410	TOTAL ...			6,109	—94

For M/s P.N. Bahri & Co.,
Chartered Accountants.
(P.N. Bahri) Partner,
Chartered Accountant.

Statement of " 'CHEETAL' Publication " Account for the Year ending 31-3-1966

	Rs.	P.	Rs.	P.
Opening Balance on 1-4-1965	...	702—00		
Subscription Outstanding on 31-3-1965	...	278—75		
Advertisement Outstanding on 31-3-1965	...	225—00		
Subscription Advance for 1966-67	...	25—80		
'CHEETAL' Photo	...	6—12		
Printing Charges	..	3,466—07		
Press Cutting Charges	...	60—84		
'CHEETAL' Postage	...	487—70	5,252—28	
<i>Less:</i>				
Sales and Subscriptions	...	285—42		
Advance Subscription received in 1964-65	...	408—20		
Advertisement Receipts	...	450—00		
Subscription Outstanding on 31-3-1966	...	807—55		
Advertisement Outstanding on 31-3-1966	...	225—00		
Government Grant for 'CHEETAL'	...	1,000—00		
Stock in Hand	...	840—50	4,016—67	
Balance on 31-3-1966	...		1,235—61	

15, Rajpur Road, Dehra Dun,
Dated June 10, 1966.

For M/s P.N. Bahri & Co.,
Chartered Accountants.
(P.N. Bahri) Partner,
Chartered Accountant.

WILD LIFE PRESERVATION SOCIETY OF INDIA, DEHRA DUN

ANNEXURE 'B'

Statement of Accounts for the Year ending 31st March, 1966

1. Pads and Covers

Sales	...	Rs. 252.00	
Outstanding Bills on 31-3-1966	...	" 288.00	
For Office Use:	...	<u>" 21.03</u>	Rs. 561.03
Stock on 31-3-1966	...		<u>Rs. 105.19</u>
			Rs. 666.22
Less: Printing Charges	...	Rs. 310.00	
Stock on 1-4-1965	...	<u>" 72.00</u>	<u>Rs. 382.00</u>
			Rs. 284.22

2. Greeting Cards

Sales	...	Rs. 1034.90	
Outstanding Bills on 31-3-1966	...	" 181.50	
Stock on 31-3-1966	...	<u>" 186.86</u>	Rs. 1403.26
Less: Printing Charges	...	" 375.00	
Outstanding Bills on 1-4-65	...	" 60.60	
Stock on 1-4-1965	...	<u>" 25.50</u>	<u>Rs. 961.10</u>
			Rs. 442.16

3. Nature Games

Sales	...	Rs. 18.00	
Free Issue to Members	...	" 12.60	
Stock on 31-3-1966	...	<u>" 346.50</u>	Rs. 377.10
Less: Stock on 1-4-1965	...		<u>Rs. 371.70</u>
			Rs. 5.40

4. Ties

Sales	...	Rs. 168.00	
Outstanding Bills on 31-3-66	...	<u>" 336.00</u>	Rs. 504.00
Stock in Hand	...		<u>Rs. 140.00</u>
			Rs. 644.00
Less: Stock on 1-4-1965	...		<u>Rs. 560.00</u>
			Rs. 84.00

5. Buttons

Sales	...	Rs. 74.77	
Outstanding Bills on 31-3-66	...	" 43.68	
Stock in Hand	...	<u>" 28.17</u>	Rs. 146.62
Less: Stock on 1-4-1965	...		<u>Rs. 145.87</u>
			Rs. 00.75
		TOTAL	<u>Rs. 816.53</u>

For M/s. P.N. Bahri & Co.,
Chartered Accountants.

P.N. Bahri (Partner.)
Chartered Accountant.

15, Rajpur Road, Dehra Dun,
Dated June 10, 1966.

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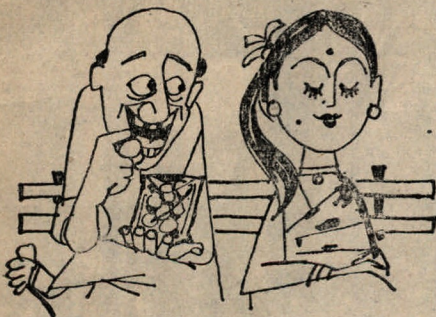
Do you dote on ghee

And pure, fresh tea?



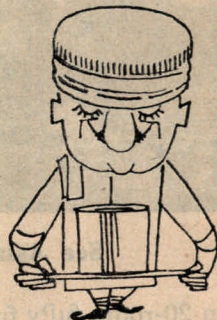
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*For further particulars please apply to :—*THE DIVISIONAL FOREST OFFICER,
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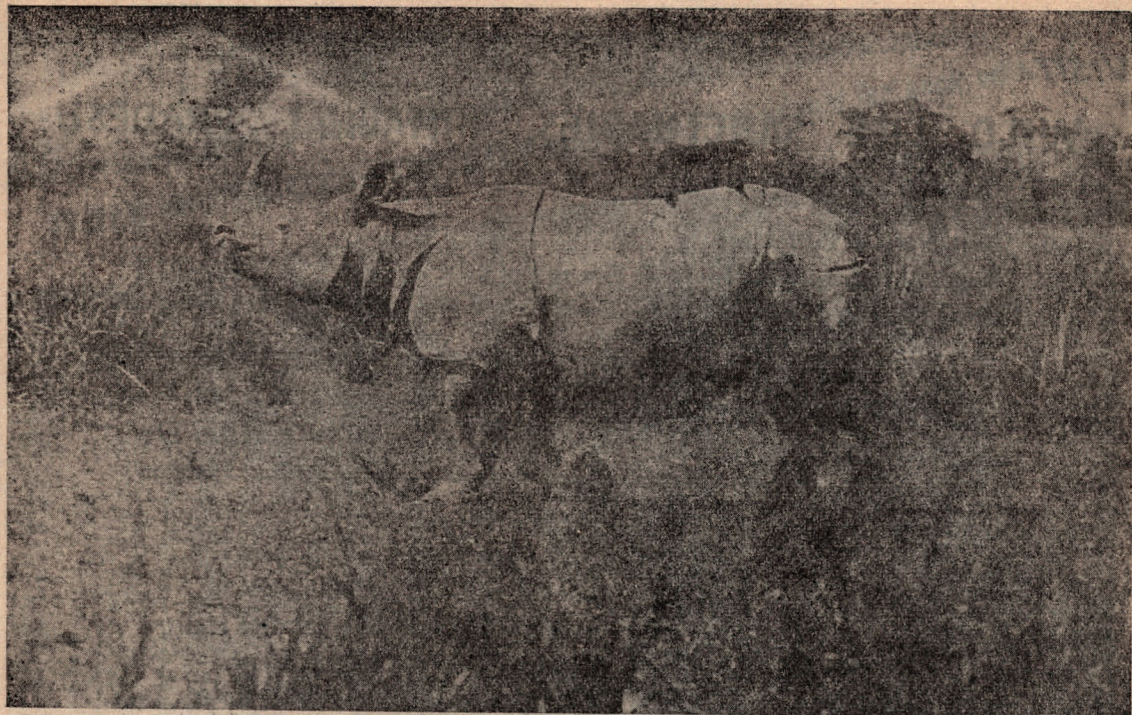
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5. Water Supply Catchment Area, Simla		Ghoral, Barking Deer and Kalij pheasants.
6. Shilli	...	Barking Deer and Red Jungle Fowl.
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8. Darlaghat	...	Chakors.
9. Shri Naina Devi	...	Sambhar, Barking Deer, Red Jungle Fowl and Partridges.
10. Simbalbara	...	Spotted Deer and Red Jungle Fowl.
11. Rainka	...	Red Jungle Fowl, Kalij Pheasants, Barking Deer and Cheer Pheasants.
12. Narguwinch Camp	...	Musk Deer and Cheer Pheasant.
13. Shikari Devi	...	Musk Deer and Monal.
14. Bandli	...	Ghoral.
15. Kalatop and Khajjiar.	...	Koklash, Ghoral Serow and Brown Bear.
16. Tundah	...	Thar and Snow Cock.
17. Kugti	...	Ibex, Brown Bear and Snow Leopard.
18. Gamgul Siya	...	Kashmir Stag and Thar.
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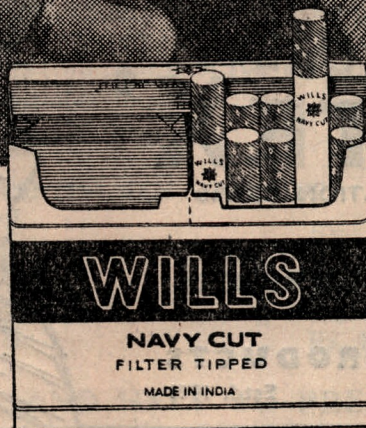
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VOL. IX

OCTOBER, 1966

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